

ARMOURERS' WING
PRECIS

—
VOLUME II
—

REME TECHNICAL TRAINING SCHOOL BAOR

ARMOURERS' WING

PRECIS

VOLUME II

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R.E.M.E. TECHNICAL TRAINING SCHOOL

B.A.O.R.

ARMOURERS' WING PRECIS, VOLUME II

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RIFLES

There are five patterns of rifles at present in the service. These are numbered from Rifles No. 1 to Rifles No. 5. Summarised, their individual characteristics are as follows:—

- Rifle No. 1.** Calibre .303". Accurate and tough. For many years the British Army's main personal weapon.
- Rifle No. 2.** In design and action similar to a Rifle No. 1 but has a calibre of .22". This rifle is used for primary training of recruits.
- Rifle No. 3.** Designed on the lines of the German Mauser but with .303" calibre. Introduced in 1914 and often referred to as the Pattern '14 Rifle. It failed however, to replace the No. 1 Rifle as first favourite. It can be fitted with a telescope, and was used extensively in the first World War as a Sniper's rifle.
- Rifle No. 4.** This rifle is the main service rifle of the British Army. It has a calibre of .303" and in mechanism is the same as the No. 1. It incorporated however some new principals, e.g. a protruding barrel, a longer sight radius with an aperture backsight. The No. 4 rifle is also manufactured as a telescopic rifle.
- Rifle No. 5.** This is in principal a No. 4 Rifle of shortened and lightened pattern. It was introduced for use in jungle country. Incorporates a flash eliminator and a rubber butt pad.

RIFLES No. 1 Mk 3 & 3*

General Information

The Rifle No. 1 is a bolt operated, single shot, magazine fed weapon of .303" calibre. It combines accuracy with an ability to withstand rough usage. The Mk 3 differs from the Mk 3* in that it is fitted with a cut-off. In the Mk 3* the slot in the body for the cut-off is omitted in manufacture.

General Characteristics

Weight	8 lbs 10 ozs
Length	(with normal butt) 3 ft 8 ins.

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Calibre and Rifling	.303"
	Five grooves.
	Left hand turn.
	One turn in 10 ins.
Magazine capacity	10 rds.
Sight radius	19.44 ins.
Baksight	Leaf type with slide operated on inclined ramps. "U" or "V" cap. Graduated 200 to 2000 yds.
Fore-sight	Blade. Seven heights from -.06" to .03" in variations of .015"

STRIPPING

1. Raise bolt lever and pull back bolt. Lift bolt head over retaining spring and withdraw bolt.
2. Press up magazine catch and remove magazine.
3. Remove screws nose-cap front and back and slide off nose-cap.
4. Remove screws swivel, swivel, band outer and front handguard.
5. Remove screws band inner and spring.
6. Remove screws guard trigger front and back. Remove trigger guard with trigger and pin.
7. Raise backsight leaf and remove the handguard rear.
8. Remove stock fore-end with stud and spring, and protector nut and screw.
9. Remove screws butt-plate; butt-plate and wad stock bolt.
10. Remove stock bolt with bits, armourers, stock bolt, and remove stock butt from socket of body.
11. Remove screw, spring bolt-locking; spring; washer; bolt-locking and safety catch.
12. Remove spring sear; screw sear; sear and retaining spring.
13. Remove pin trigger and trigger.
14. If the rifle is a Mk 3 remove screw cut-off and cut off.
15. Drive out fixing pin from axis pin of backsight and remove washer. Drive out axis pin and lift out backsight leaf from bed.
16. Remove screw spring backsight and slide spring out rearwards from its dovetail.

To strip the Bolt-breech

With pin end of tool removing extractor, apply pressure through small hole in bolt-head thus releasing the extractor spring. Unscrew extractor screw and remove extractor. Unscrew bolt-head from bolt. Unscrew striker screw from cocking piece. With tool removing striker inserted in bolt-breech, unscrew striker from cocking piece and remove striker and mainspring.

To strip Backsight

Remove screw catch slide backsight and spring. Remove slide from leaf. Remove catch from slide. Unscrew cap backsight screw and remove cap.

To strip magazine

Push down on wider end of platform until narrow end is released from nibs on magazine case and lift out platform and magazine spring. Apply screw-driver under head of auxiliary spring and force off case.

ASSEMBLING

Reverse the order of stripping paying particular attention to the following:—

Safety catch

This screws on the locking bolt by a left handed, multiple thread. Its position when screwed on should be at approximately eleven o'clock in relation to the thumbpiece of the locking bolt.

Stock-bolt

When screwed home tightly the square end should be so positioned through the butt socket that it will allow the plate stock-bolt to engage when assembling stock fore-end.

ACTION OF MECHANISM

1. On raising the bolt lever the bolt rotates. The bolt-head is prevented from rotating as its hook is engaged with the rib of the body. The cocking-piece is prevented from rotating by its tongue working in its groove in the body.
2. As the bolt rotates the stud on the cocking-piece is forced from the long to the short cam groove on the bolt. The cocking-piece is thus withdrawn about one tenth inch, carrying the striker with it and freeing the striker point from the cap of the fired cartridge case. At the same time the lug on the underside of the bolt working in the angular slot in the body, withdraws the bolt and bolt-head slightly to the rear and unseats the empty case in the breech. This action is called "Primary extraction."

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Précis No. SA/16

3. With the bolt fully rotated, the resistance column is in line with the slot on top of the body and the bolt can be drawn to the rear. The extractor under the influence of its spring grips the rim of the empty case and withdraws the case from the breech. The left hand side of the body is so grooved that the extractor is able to force the base of the empty case to the left giving the front a tilt to the right and ejecting the case from the rifle. Should this action be insufficient to effect ejection, an ejector screw is situated in the left hand side of the body which will strike the base of the empty case and assist ejection.
4. Further backward movement of the bolt brings the cocking-piece out of contact with the sear which is forced upward by its spring bringing the long arm into position to engage the cocking-piece on its forward movement.
5. The face of the bolt-head is now clear of the top round in the magazine, which under the influence of the magazine spring rises in front of the bolt in readiness to be fed into the chamber.
6. On pushing the bolt forward it engages the top round in the magazine which is carried forward with it and enters the chamber. The rim of the cartridge engages with the extractor.
7. The front face (or full bent) on the cocking-piece coming into contact with the long arm of the sear, the cocking-piece and striker are held back. As the bolt is pushed fully home therefore the mainspring inside the bolt is compressed between the collar of the striker and the rear, inside face of the bolt.
8. When the bolt is pushed fully forward, the bolt lever is depressed thus rotating the bolt. The lug, working in its groove and the resistance column working on the resistance shoulder give the bolt an extra push home firmly seating the cartridge in the chamber and locking the breech. The extractor, coming into contact with the recess in the body is forced to the right against its spring and out of contact with the rim of the cartridge.
9. The turning of the bolt has brought the long cam groove opposite the stud on the cocking-piece and the action is fully cocked ready for firing.
10. On pressing the trigger the bottom rib on the trigger comes into contact with the short arm of the sear causing the sear to rotate on its axis. This draws the long arm of the sear down the face of the cocking-piece until the top rib of the trigger meeting the short arm of the sear causes a definite check. This is the "First pull."

More pressure on the trigger causes further rotation of the sear until the long arm is released from the cocking-piece. The cocking-piece and striker

RIFLES Nos 1.2.4 AND 5. - TRIGGER ACTION

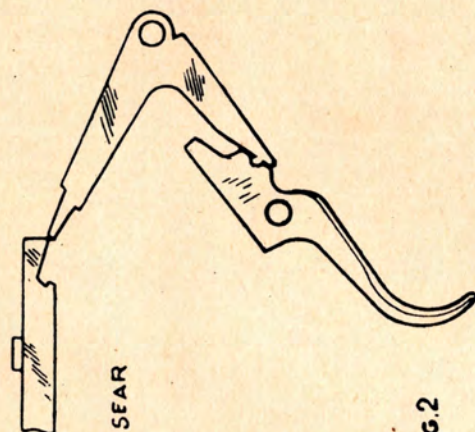


FIG.2

ACTION COCKED

FIRST TRIGGER PRESSURE.
BOTH RIBS ON TRIGGER BEARING
ON LOWER ARM OF SEAR.
NOSE OF SEAR ON EDGE OF
FRONT FACE OF COCKING
PIECE.

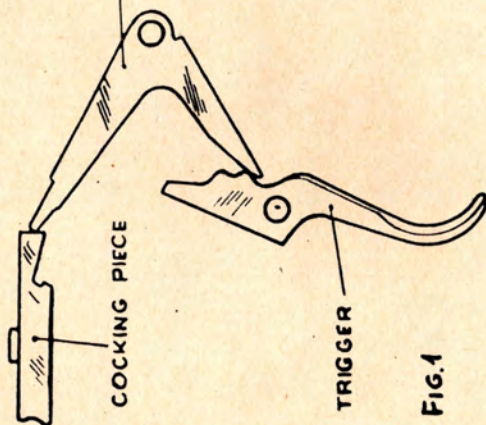


FIG.4

ACTION COCKED

LOWER RIB ON TRIGGER BEARING
ON LOWER ARM OF SEAR.
NOSE OF SEAR 1/3 WAY UP
FRONT FACE OF COCKING
PIECE.

RIFLES N^{os} 1, 2, 4 AND 5 - TRIGGER ACTION.

ACTION FIRED

SECOND TRIGGER PRESSURE
UPPER RIB ON TRIGGER BEARING ON LOWER
ARM OF SEAR.
NOSE OF SEAR DISENGAGED FROM FRONT
FACE OF COCKING PIECE.

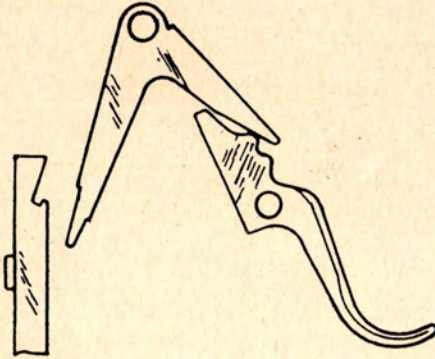


FIG. 3

under the influence of the compressed mainspring, are carried forward. The stud on the cocking-piece entering the long cam groove allows the striker its full forward movement so that the striker point protruding from the bolt head, strikes the cap and fires the charge. Forward movement of the striker is controlled by its collar meeting the tenon of the bolt head.

SAFETY PRECAUTIONS

Mechanical Safety

This is incorporated in the mechanism, and acts mechanically in certain emergencies.

Should the action be cocked and the bolt only half closed and pressure is applied to the trigger, the cocking-piece will fly forward but its stud will strike and remain behind the stud on the bolt. This prevents the striker from striking the cap. On closing the bolt the sear engages the half bent on the cocking-piece and the stud on the cocking-piece lays alongside the stud on the bolt. The bolt lever then, cannot be raised and to re-cock the weapon the cocking-piece must be pulled back with the fingers.

It is possible however that the trigger may be pressed when the bolt is over half way, but yet not quite fully closed. In this case the left side of the studs on the cocking-piece will strike the right side of the stud on the bolt, and giving it a glancing blow, will rotate, and fully close the bolt. This allows the stud on the cocking-piece to go into the long cam groove and the round is fired.

Applied Safety

This is a form of safety device which must be applied by hand and on the Rifle No. 1 it operates as follows:—

Assuming the action to be cocked, backward rotation of the locking bolt forces the safety catch inward through the medium of the multiple thread. The safety catch engages under the wall of the short cam groove and prevents the bolt lever from being raised. At the same time the half moon end of the locking bolt engages with the front recess in the cocking-piece. This action slightly withdraws the cocking-piece and striker to the rear, and disengages the front face of the cocking-piece from the long arm of the sear. The trigger is thus rendered inoperative.

If the bolt locking is rotated backwards when the action is in the forward or "fired" position, the action of the safety catch is the same as previously. The half moon off the bolt locking however will now engage with the back recess in the cocking-piece, withdrawing it slightly and preventing its being pulled into the cocked position.

TESTS, ADJUSTMENTS AND GAUGING

In addition to the normal rules observed during the examination of weapons regarding the tightness of joints, absence of burrs, etc., the following special points should be observed:—

(a) Barrels

If these are found to possess bends, bulges or puckers, the rifle should be condemned.

In addition the following bore gauges should register as follows:—

.301" plug	Should run through the bore. If it does not run ensure the barrel is free from dirt etc.
.307" plug	Should not run through the bore.
.308" plug	Should not enter the muzzle more than $\frac{1}{4}$ inch.
.310" plug	Should not enter the breech more than $\frac{1}{4}$ inch.
Lead plug	Should not enter breech more than $\frac{1}{2}$ inch.

Failure to conform to these gauging limits normally renders a barrel u/s, but an armourer should use his discretion before condemning it, in the event of the rifle shooting accurately.

Cordwear, caused through improper use of a pullthrough, may render a barrel u/s but it should be tested first for accuracy. If it passes the accuracy test and remains in service it should be stamped to denote that it is cordworn. This is done by stamping on the knoxform a star over a letter "W", at the front to denote cordwear at the muzzle, and at the back to denote cordwear at the breech.

A star by itself on the front of the knoxform denotes that rust has been detected in the barrel and cleaned by an armourer. Any other stars on the barrel denote rust or pitting in the vicinity of that star.

(b) Cartridge head space

With the "Gauges Armrs, .074" No: 1." in the chamber, the bolt should not close. If it does, it denotes excessive cartridge head space, and the bolt head should be exchanged.

With the "Gauges Armrs, .064" No. 1." in the chamber the bolt should close. Failure to do so can be remedied by reducing the face of the bolt head with emery stone or other suitable abraasive.

Any adjustments to cartridge head space, must always leave the "space" within the limits .064" close, and .074" not close.

(c) Striker protrusion

The striker protrusion of the No. 1 Rifle has recently been modified to conform with the No. 4 Rifle limits of .040" low and .050" high. This can be measured with either the "Gauges Armrs. Striker Point No. 4." or with a modified "Gauges Armrs. Striker Point No. 1."

If the striker protrusion is insufficient it can be extended by filing the tang of the bolt head where the collar of the striker butts on to it. In carrying out this remedy however, make sure that the "lift" of the cocking-piece is not lost. The "lift" of the cocking-piece, is that movement of the cocking-piece away from the bolt, as the bolt head is screwed fully into the bolt, and ensures that the forward blow of the striker is taken by the collar of the striker and not the cocking-piece.

If the striker protrusion is excessive, it should be decreased by stoning down the point of the striker, at the same time maintaining its radius.

(d) Pull-off

In addition to being distinct and smooth the two pulls required to fire the rifle, should be, respectively, 3 — 4 lbs, and 5 — 6 lbs.

If the first pull is too short and drags are evident on the second pull, carefully reduce the top rib of the trigger.

If sear disengages on the first pull, or the second pull is too short and light, carefully reduce the bottom rib of the trigger.

If both pulls are of good length and there is no drag to the second pull, it may still be found that the pulls are heavy. This can be remedied by altering the angle of the front face of the cocking-piece in relation to the UNERDSIDE of the cocking-piece. By increasing this angle the pulls will be lightened. Therefore by decreasing the angle, the pulls can be made heavier if that is necessary.

Before testing the pull-off it should be ascertained that the sear is not too high and fouls the lug on the bolt. This will itself affect the pull-off by altering the angle of contact between the trigger and the sear.

(e) Retaining spring

While being strong enough to retain the bolt head, the retaining spring should not be too strong to allow the bolt head to be released by the finger. With the claw of the "Tester's trigger" engaged over the bolt head a pull of 10 — 16 lbs. should be necessary to release it from the retaining spring. If the weight is outside these limits, exchange or set the retaining spring. Do not file the hook of the bolt head.

ARMOURERS' WING

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(f) Mainspring

Engage the hook of the "Tester's trigger," over the cocking-piece and pull back. A pull of 7—9 lbs should be necessary to move the cocking-piece. With the Rifle fully cocked the pull necessary to move the cocking-piece should be 14—16 lbs.

If these pulls are heavy, test for a bent striker. If they are too light change the mainspring.

(g) Stock-bolt

This component protrudes through the socket of the body and its square end engages in the plate stock-bolt, in the base of the stock-fore-end. This prevents it from rotating and loosening the butt. This bolt must not protrude too far and foul the fore-end. Its limits, measured with the "Gauge, protrusion of stock-bolt" are .114" low and .168" high.

(h) Stock fore-end

This component should fit on the rifle as follows:—

- (i) Tightly between sear lugs and socket of body.
- (ii) With a good bearing on the body surfaces, along the narrow ledges on either side of the magazine opening for a distance of $1\frac{1}{2}$ " from the front.
- (iii) With a good bearing of the reinforce extending for the full length of its seating and about one third of the seating in width. The bearing should be central.
- (iv) With a good bearing of the barrel from a point about half an inch behind the inner band forward to the muzzle. This bearing should be about $1\frac{1}{4}$ " in width and central.
- (v) The fore-end should be clear of the barrel in ALL other places.
- (vi) With the rifle fully assembled, the spring and stud fore-end will impart a slight spring to the muzzle by lifting it just clear of the fore-end. Even so, the barrel should still bear hard either side of the inner band.

(j) Stock-butt

This should always be a tight fit in the socket, a new butt being driven into the socket with the aid of an "Anvils Stock." If the butt is loose it can be tightened by either fitting a patch of wood to the socket end, or by the fitting of a piece of hard paper to the socket end as laid down in Instructions for Armourers 1931, Part 2, Chapter 1, Section 4.

Stock butts are issued in four sizes, i.e. long, normal, short and bantam. The difference between each size is $\frac{1}{2}$ ".

A.C.Is

1940	1444.	Painting of barrels.
1941	552.	Remove the piling swivels and screws.
	957.	Skeleton action, not considered necessary
	1151.	.303" and .30", distinguishing marks.
	2552.	Reduction in scale of head breech bolt.
1942	1349.	Bolts locking and cocking-pieces Mk. 2.
	1807.	Fitting of head breech bolt.
1943	507.	Bolts locking. Mk. 2. assembly.
	869.	Modification to handguards.

ARMOURERS' WING

Précis No. SA/16

RIFLES No. 1. MKS. 3 A and 3*.

(Regulations affecting the above equipments)

E.M.E.Rs

S.A. & M.G.	C.303.	page 1.	Striker protrusion limits and reversion to original Cartridge Head Space.
	C.303.	page 3.	Fitting of replacement butts and butt plates.
	C.309.	Mod. Instru. No. 1.	Marking of barrels with the letters H.V. and S.C.

VARIOUS MARKS ON RIFLE BARRELS

Mark	Where Found	Meaning
E.Y.	On the Knox Form.	May be utilised in cases of emergency for ball ammunition.
D.P.	On the Knox Form.	For Drill Purposes only.
Year of Manufacture.	Underneath the Knox Form.	
Rotation Number and Series Letter.	RIFLES No. 1 and 2 On the Right of the Knox Form. RIFLES No. 4 and 5 On the Left of the Butt Socket.	The Number on the Body governs the Number of the Rifle.
P.	On the Left of the Knox Form.	Parallel Bore.
*	On the Front of the Knox Form.	Rust or Cuts inside the Barrel.
X.	On any other position on the Barrel.	Corrosion or Rust on the exterior of the Barrel, near the Star.
* W.	On the Left Side of the Knox Form at the Front end of the Reinforcing for the Muzzle or the rear end of the Breech.	Cordworn. Inspection Department Marking.
R.	On the Knox Form.	Found Rusty by an Examiner. To be cleaned by an Armourer.
X.	Same as *	Marked by C.I.S.A. to distinguish from Inspn. Dept. Marking.
X. W.	Same as * W.	Cordworn. Marked by C.I.S.A.

RIFLES No. 2 Mk. 4*

General Information

The No. 2 Rifle is the Service pattern .22" rifle for training recruits. In appearance it is similar to the No. 1, its only difference being calibre, in the pattern of striker and bolt head and the absence of a platform and spring in the magazine.

General Characteristics

Weight	9lbs 8ozs (approx).
Length	} As for rifle No. 1.
Sight Radius	
Calibre	
Rifling	.22". Right Hand, Eight Grooves. 1 Turn in 16-ins.

STRIPPING

To strip the No. 2 Rifle follow the same sequence as laid down in chapter for Rifle No. 1, noting that:

- (a) The striker and firing pin are two separate components.
- (b) There is no platform and spring or auxiliary spring in the magazine.

ASSEMBLING

As for Rifle No. 1.

ACTION OF MECHANISM

This is also identical with that of the Rifle No. 1 with the exception of the following points:—

Firing:— The cartridge used is a rim fire type and the hole in the bolt head is not central. The striker flies forward and strikes the firing pin carrying it forward against the rim of the cartridge, firing it.

Ejection:— There is no actual mechanical ejection. As the empty case is drawn clear of the chamber it falls from the face of the bolt head into the case magazine.

NOTE: The extractor is slightly different in shape but has the same operation.

Feeding:— This must always be done by hand as there is no magazine feed.

ARMOURERS' WING

Précis No. SA/16a

SAFETY PRECAUTIONS

As for Rifle No. 1.

TESTS, ADJUSTMENTS AND GAUGING

In addition to the normal routine examination the following should be carried out.

Barrels:— There are no gauging limits for barrels of No. 2 Rifles. A barrel will be condemned only if it fails to pass the tests as laid down in S.A.T. Vol. 1. Pamphlet 1, Appx. 1. It should group inside a $1\frac{1}{2}$ " square at 25 yards. Failure to do this should be reported in the usual manner on A.F.B./202 and target forwarded. Bulges are permissible but a bent barrel will be exchanged.

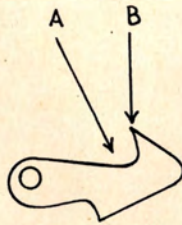
Cartridge Head Space:— This is gauged by removing the extractor and spring, closing the bolt and inserting between the bolt head and breech face a feeler gauge of .008" thickness. If this gauge is accepted the bolt head is too short and should be exchanged. The firing pin should also be removed.

Firing Pin Protrusion:— The rear end of the firing pin should be just below the level of the face of the bolt head tang, but not excessively so, or over protrusion will result. Hold assembled bolt vertical, bolt head upward, and gauge firing pin protrusion with unmodified No. 1 gauge. Its limits should be .040" low and .050" high.

All other tests and adjustments as laid down in chapter for Rifle No. 1, apply equally to the Rifle No. 2.

In certain cases it is found that the extractor fails to function correctly; this is usually caused by a dirty bolt and extractor, or a worn extractor. In either case the bolt head should be stripped and the following action taken:—

- (a) Thoroughly clean and assemble.
- (b) If this fails to correct the trouble remove the extractor again and grip it in a vice. Using a stone remove approximately .015" of metal from face "A" See Sketch.
- (c) Care must be taken that lip "B" is not damaged whilst metal is being removed.



EXTRACTOR

ARMOURERS' WING

Précis No. SA/16a

ARMY COUNCIL INSTRUCTIONS

1444	1940	Painting of Barrels.
2351	1941	Scale of Issue.
617	1943	Sights Auxiliary Mk. 1.

RIFLES No. 2 Mk. 4*.

Regulation governing the above equipment

E.M.E.Rs.

S.A. and M.G.

C.153

Issue 1. Pages 1 to 4.

Fitting of Replacement Butts.

RIFLE No. 3. Mks 1 & 1*

General Information

The No. 3 Rifle is of .303" calibre but differs from the No. 1 in that it incorporates a one-piece stock, a one-piece breech bolt and a protruding barrel. It is based on the Mauser pattern. It was first introduced in 1914 and was used in the Great War, mainly with a telescope fitted as a Snipers Rifle.

The difference between the Mk 1 and 1* Rifles, lies in the Bolt and Barrel. It was found necessary, owing to the cartridges on rising from the magazine, and going forward, not engaging or being engaged by, the left lug; to modify the bolt by lengthening that component. This necessitated deepening the recess in the rear barrel face to receive the longer lug. Rifles thus modified become Mk 1*.

General Characteristics

Weight	9 lb (approx)
Length	3 ft 10 ins
Calibre and Rifling	.303"
	Five grooves
	Left hand turn
	1 turn in 10 ins.
Magazine capacity	5 rounds
Sight radius	31.75 in.
Backsight	Tangent aperture. On vertical leaf. 200—1650 yds.
Foresight	Blade. Eleven sizes; —.015" to .135", .015" increments.

STRIPPING

Remove the components in the following order:—

Bolt. Withdraw the bolt to its fullest extent; pull outwards on the thumb-piece of the bolt stop, and draw the bolt out of the rifle.

Screw nose-cap, screw band and swivel.

Magazine plate, spring and platform.

With the nose of a punch, depress the magazine catch, and slide the bottom plate backwards. The three parts will then come out together.

Screws trigger guard, back and front.

Trigger guard with magazine catch and magazine case.

ARMOURERS' WING

Précis No. SA/17

Nose cap from the stock and handguard front.

Band and handguard rear.

Barrell and body from the stock.

Sear axis pin, sear with spring, and trigger.

Bolt stop screw, bolt stop with spring and ejector.

Safety catch, locking bolt cover plate, locking bolt and spring.

To remove the safety catch, turn it backwards and down until the thumbpiece is in the lowest position and pull it outwards slightly oscillating the thumbpiece during withdrawal.

Backsight axis screw, nut and leaf backsight.

Screw and spring from backsight bed.

To strip the bolt

Turn the extractor to the right until it covers the gas escape hole and the nib is clear of the cannellure. Then push the extractor forward. With the "Tool stripping bolt" (a loop of string will substitute) over the stripping nib of the cocking-piece, draw out the cocking-piece until the tooth is clear of the rear of the bolt and then unscrew the bolt-plug. Place the point of the striker on a piece of hard wood, press down the bolt-plug until the rear end is clear of the cocking-piece, give the cocking-piece a quarter turn and lift it off the striker. Let the bolt-plug rise slowly and remove it and the mainspring from the striker.

To remove the Block band foresight from the barrel

Drive out the fixing pin from right to left. Remove the block by gently tapping it towards the muzzle. Take the key from its seating.

NOTE:—This should never be removed until it becomes necessary to exchange the nose-cap or hand guard ring.

ASSEMBLING

Reverse the instructions contained in the previous section, noting the following:—

To replace locking-bolt and safety catch

Replace locking-bolt, with "V" groove horizontal, together with its spring. Push forward with a punch as far as possible and insert the safety catch so that the half moon clears the punch. Push home the safety catch at the same time withdrawing the punch.

Bolt

As the platform magazine is so made that it holds back the bolt when the magazine is empty, the platform must be depressed by hand before the bolt can be pushed home when assembling.

ACTION OF MECHANISM

1. On raising the bolt lever the bolt rotates. The extractor is held in position by the body and is prevented from rotating. The cocking-piece is also prevented from rotating by the groove in the rear of the body.
2. As the bolt rotates the cocking-piece is forced from the long cam groove to the short cam groove, thus withdrawing the striker from the base of the round. The inclined shoulder at the rear of the bolt, riding against a similar shoulder in the body, withdraws the bolt approximately one tenth of an inch; the extractor being engaged with the rim of the empty case extracts it a similar distance from the chamber. This is known as "Primary extraction."
3. On drawing the bolt to the rear the extractor withdraws the empty case from the chamber. When the case is clear of the chamber its rim meets the ejector in the left of the body, and the case is ejected to the right. The next round in the magazine is forced upward by the spring and platform, ready to be fed into the chamber.
4. During the backward movement of the bolt, the cocking-piece rides over the sear depressing it. The sear is able to rotate as the flat on the bolt is over the sear stud, enabling the stud to rise. As the cocking-piece is drawn clear the sear is forced up again by the spring, ready to engage the cocking-piece on its forward journey. The bolt is halted on its backward movement by the bolt stop on the left of the body.
5. On pushing the bolt forward the bolt face connects with the top round in the magazine and carries it forward into the chamber. The rim of the cartridge rises and engages behind the extractor claw.
6. The face of the cocking-piece connects with the rear face of the sear and its forward movement is arrested. As the bolt moves further forward the mainspring is compressed between the collar of the striker and the bolt-plug, and the striker is withdrawn into the bolt.
7. Downward pressure on the bolt lever rotates the bolt. The locking lugs on the front of the bolt entering the oblique cutting in the body force the bolt right home and lock the breech. The cocking-piece is now in line with the long cam groove in the bolt, ready to fly forward when released from the sear.

8. Pressure on the trigger rotates it on its axis. The front rib on the upper surface of the trigger comes into contact with the body preventing further upward movement. As the trigger is pivoted to the sear, the sear is rotated and its rear end is forced downwards. When the back rib on the trigger meets the body, the movement of the trigger and sear is given a check. This is the end of the "First Pull." Further rotation of the trigger causes the tail of the sear to disengage from the cocking-piece. The cocking-piece and striker fly forward under the influence of the mainspring and the striker fires the charge. The forward movement of the striker and cocking-piece is arrested when the cocking-piece strikes the plug-bolt.

SAFETY PRECAUTIONS

Mechanical Safety

Should the action be cocked, but the bolt only half closed, the sear is prevented from rotating sufficiently to release the cocking-piece, by the stud on the front of the sear coming in contact with the bolt and preventing movement. Not until the bolt is FULLY closed can the sear fully rotate. The recess on the underside of the bolt is then immediately above the sear stud allowing it to rise fully.

owing to the presence of the flat on the bolt, it is possible to release the sear if the bolt is left in the "NEARLY OPEN" position. In this case however the forward movement of the cocking-piece and striker is arrested by the face of the cocking-piece striking, and engaging behind the shoulder between the long and short cam grooves on the bolt. To re-cock, raise the bolt-lever, withdraw the bolt to the rear and push FULLY home.

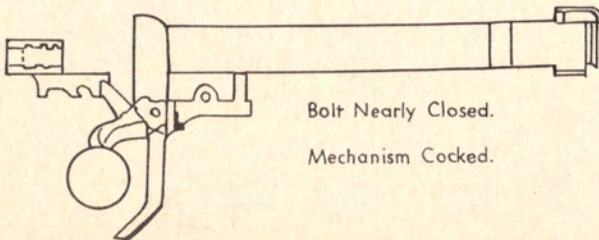
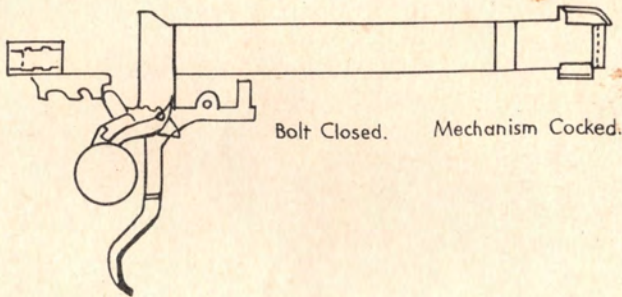
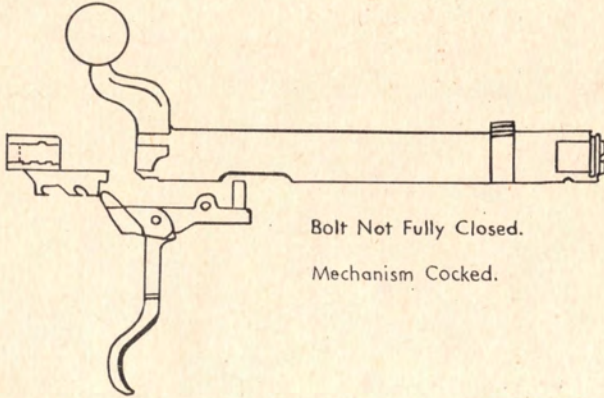
Applied Safety

Assuming the action to be cocked, rotation of the safety catch brings its half-moon shaped end into the front recess in the cocking-piece. This withdraws the cocking-piece slightly to the rear, disengaging it from the sear and leaving the trigger inoperative. At the same time the safety catch forces the bolt-locking forward compressing its spring. The bolt-locking protrudes into the bolt-lever way and enters the recess in the bolt-lever, thus preventing the bolt-lever from being raised.

If the action is in the fired position the same sequence takes place, except that the half-moon end of the safety catch engages the rear recess of the cocking-piece, preventing its being drawn back into the rear position.

Rifle No 3, Mk I and Mk I*

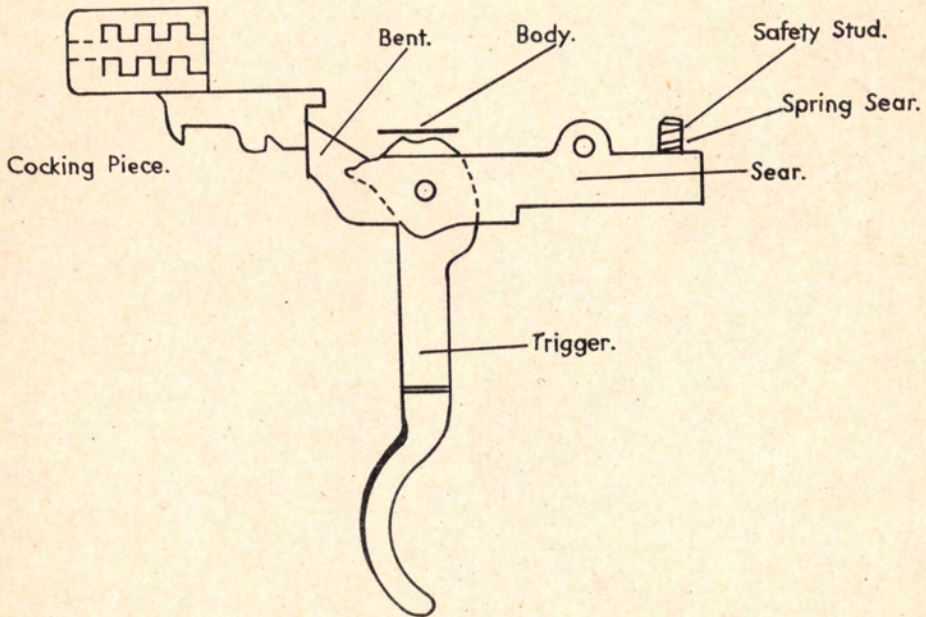
Mechanical Safety Action.



Rifle No 3, Mk I and Mk I*

Trigger Mechanism.

Cocked.



TESTS, ADJUSTMENTS AND GAUGING

Follow the same sequence of inspection as with a normal rifle taking special note of the following:—

(a) Barrels

The gauging limits for barrels on this rifle are the same as those for the No. 1.

(b) Cartridge head space

The limits for this test are again the same as those for a Rifle No. 1 namely .064" Low and .074" High. In testing the CHS of a Rifle No. 3 however the No. 2 gauges should be used. The No. 2 gauges are slightly narrower across the base than the No. 1 thus allowing them to seat inside the collar on the bolt face. The No. 2 gauge is also longer and tapered toward the front end to allow for easy insertion in the breech of No. 3 rifles. If the CHS is incorrect on a No. 3 rifle, the breech bolt must be changed until one of satisfactory length is found, as adjustment to the bolt face is not possible.

(c) Striker Protrusion

This should be between .05" and .055", and is gauged with a "Gauges Armourers Striker Point, No. 2". If the striker is too long, adjust it by reducing the point with a carborundum stone, ensuring that the radius is maintained.

If the striker is too short, the front of the cylindrical portion of the cocking-piece, where it bears on the bolt-plug, should be reduced until correct protrusion is obtained.

If the striker is inserted in the bolt, without either bolt-plug or cocking-piece, a great deal of extra protrusion should result. This ensures that when assembled, the collar of the striker is not bearing at the bottom of the spring chamber.

(d) Pull Off

Test this as for the No. 1, first ascertaining that there are two pulls, and that they are distinct and smooth. The weights of the pulls when weighed should be—first pull 2 to 3 lbs,—second pull 5 to 6 lbs. Any errors in the pull-off should be remedied by adjusting the trigger ribs. If the first pull is too long reduce the front rib until satisfactory pull is obtained. If the first pull is too short reduce the back rib in a similar manner. Do not touch either the cocking-piece or sear. If the ribs of the trigger are badly worn exchange the trigger.

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(e) Sear

When fitting a new sear the height of the stud should be so regulated as to prevent the trigger from functioning correctly until the bolt is fully closed. (A low stud will permit of the sear releasing the cocking-piece with the bolt lever partially raised.)

(f) Mainspring

The mainspring cannot be weighed with the bolt closed, but only when the latter is drawn back against the bolt-stop. The cocking-piece is then turned into the long camway of the bolt and the Testers-trigger applied against the stripping nib of the bolt. To move the cocking-piece should take a pull of between 8 and 10 lbs.

To test the mainspring in the fully cocked position, draw the bolt against the stop, as before. This time however pull the cocking-piece back until its rear face protrudes from the bolt-plug about five eighths inches. To reach this position should take a pull of between 13 and 15 lbs.

(g) Stock

When fitting a new stock to a No. 3 Rifle it should fit as follows:—

- (i) The rear face of the transverse rib on the underside of the body should bear definitely against its seating. If necessary, to ensure this, clear out the recess for the body-tang so that the tang does not bear.
- (ii) The underside and front and rear ends of body, and the reinforce of the barrel should bear definitely in the stock. The reinforce bearing should be about half an inch wide and central.
- (iii) The barrel at the muzzle end should bear lightly against the stock, when the body and reinforce bearing are correct.
- (iv) There should be sufficient clearance in the barrel grove between the reinforce and muzzle seatings, to allow a piece of thick brown paper to pass round and be drawn along the barrel.
- (v) The length of the guard screw collar should be adjusted so that the trigger guard is tightened against the collar AND the stock.

(h) Backsight

Should the battle-sight be fractured or distorted, it should be removed, filing the broken edge neatly, to the shape of the leaf. This is authorised by EMER SA & MG C 403, page 1.

SIGHTS TELESCOPIC, PATTERN '18 AND ALDIS

Two types of telescope may be met with for fitting to a No. 3 Rifle. The Pattern '18 Telescope may be removed from the rifle, but the Aldis type is permanently attached. With the Pattern '18 Telescope assembled to the rifle, single loading only is possible, as the telescope is centrally mounted over the magazine opening, not permitting the use of chargers. The Aldis Telescope however is offset to the right and the use of chargers is therefore possible.

To attach the Pattern '18 Telescope to the rifle

- (a) See that the fixing lever on the left of the rifle body is to the rear.
- (b) Place the two hooks under the trunnions.
- (c) Drop the rear end into the rectangular slot on the left of the body.
- (d) Turn the lever over to the front to engage.

To adjust Pattern '18 or Aldis Telescope for elevation

- (a) Loosen the range drum clamping screw.
- (b) Turn the range drum until the range required is opposite the mark on the saddle.
- (c) Tighten the clamping screw.

To focus either pattern telescope

- (a) Loosen the screws, clamping, focussing slide on the under side of the telescope.
- (b) Move focussing slide backwards or forwards until a clear view is obtained. (Aldis—slide moves in a diagonal slot.)
- (c) Tighten the clamping screw.

To zero the rifle with a Pattern '18 Telescope attached

- (a) Range 100 yds. Sight drum set at 100 yds.
- (b) Point of aim should be the lowest, central point of aiming mark on the target.
- (c) The rifle should form a 3" group, with five shots.
- (d) MPI should be always at the point of aim.

To adjust a Pattern '18 Telescope

- (a) **For deflection:**—Remove the telescope from the rifle. Remove the ray-shade. Slacken the three screws fixing the prism cell. With the adjusting key turn the prism cell as required i.e. clockwise if the group is to the right of the centre and anti-clockwise if the group has formed to the left. One division on the adaptor scale gives 5" of adjustment at 100 yds.

ARMOURERS' WING

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- (b) **For elevation:**—The range scale is graduated in hundreds of yards from 100 to 1000 yds. When firing at 100 yds., alteration of the range will affect elevation as follows:—

From 100 yds to 200 yds and vice versa,	2 inches.
" 200 " " 300 " " " "	3 inches.
" 300 " " 400 " " " "	4 inches.

and so on up the scale to 1000 yds.

If the MPI is above or below the point of aim it should be corrected with the range drum using the above figures as a guide. When the MPI is correct, tighten the range drum clamping screw, then loosen the small, twin screws securing the washer in the centre of the range scale ring. Turn range scale ring until range is set at 100 yds, then tighten up twin screws.

To zero rifle with Aldis offset Telescope attached

- (a) Range 100 yds. Sight drum set at 100 yds.
- (b) Point of aim should be the lowest, central point of aiming mark.
- (c) The rifle should form a 3" group, with five shots.
- (d) MPI should be $7/8$ ths inches to the right and level with the point of aim.

To adjust the Aldis Telescope

- (a) **For deflection:**—Slacken the large screw which secures the rear bracket to the rifle. Slacken the large screw on the left side of the bracket. Turn the small adjusting screw, which is behind the large screw on the left side of the bracket, to the right if the group is on the right and to the left if the group is on the left. A quarter turn of the adjusting screw gives approximately 4" of adjustment at 100 yds. After adjustment, retighten the large screws.
- (b) **For elevation:**—There are three range scale adjusting screws on the side of the range drum. One of them may be hidden by the saddle. When a screw is so hidden, loosen the range drum clamping screw turn the range drum until the screw is visible, loosen it, then re-set the range drum and follow the same procedure as for the Pattern '18 Telescope. When the zeroing is completed re-tighten the hidden screw.

RIFLES No. 3 Mks 1, 1*, and 1*(T)

Regulations affecting the above equipments.

EMERs

SA & MG S 403. page 1. Damaged battlesight to be removed from back sight.

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ARMY COUNCIL INSTRUCTIONS

1940	1444	Painting of barrels.
1941	552	Removing of Piling Swivels and Screws.
	685	Cheek rest for Rifle No. 3. (T)
	2066	Breaking down.
1942	1974	Springs backsight.

RIFLES No. 4. Mks. 1, 1*, 1 (T), and 1* (T)

General Information

The Rifle No. 4 is a modernised version of the No. 1 and has superseded it as the main personal weapon of the British Soldier. A protruding barrel, longer sight base with aperture backsight are the main differences between the No. 4 and No. 1 Rifle.

The Rifle No. 4 is also produced as a telescopic Rifle, the body being fitted with brackets to mount a Telescope Sighting No. 32. When adapted to take a telescope the nomenclature of this Rifle becomes Rifles No. 4 Mk. 1 (T) or 1* (T).

The difference between the Mk. 1 Rifle and the Mk. 1* lies in the body. Whereas the Mk. 1 is fitted with a bolthead catch near the rear of the body, the Mk. 1* has a recess cut in the right of the body near the front to allow for the release of the bolthead.

As much of the detail of this Rifle is identical with that of the No. 1, the following paragraphs will only make slight reference to these details and will deal in full only with details peculiar to the No. 4 Rifle.

General Characteristics

Weight	8 lbs 13 ozs to 9 lbs 1 oz.
Length	(with normal butt) 3 ft 8½ ins.
Calibre and Rifling	.301 ins. low to .304" high. Left Hand Turn, 1 Turn in 10 in. Mk. 2 Barrel Two Grooves. Mks 1 and 3 Barrels Five Grooves.
Magazine Capacity	10 Rounds.
Sight Radius or Base	28.74 ins.
Backsight	Mk. 1 Tangent Leaf with Fine Adjustment Screw. Aperture 200 to 1300 yards. Mk. 2 Battle or Flip Sight. 300 and 600 yards Aperture. Mk. 3 Tangent Leaf with Adjusting Catch, 200 to 1300 yards. Mk. 4 Same as Mk. 3 modification to Catch and Stop Pin.
Foresight	Blade. 8 heights from —03" to .075" in incre- ments of .015".

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STRIPPING

1. Remove Bolt—Mk. 1 Raise Bolt Lever, depress Bolt-head Catch, pull Bolt back against Resistance Shoulder. Rotate Bolt head until tongue is in line with slot in Body. Withdraw Bolt.
Mk. 1* Raise Bolt Lever, pull back Bolt until Bolt-head can be released through slot on right of Body. Withdraw Bolt.
2. Remove Magazine.
3. Remove Screws Protector Foresight and Protector or Bracket Foresight.
4. Remove Screw Band Upper and Band (hinged or solid).
5. Remove Screw Swivel Band, Band Lower, Handguard Front and Rear.
6. Remove Screws Guard Trigger Front and Back and Guard Trigger with Trigger and Pin.
7. Remove Stock Fore-end.
8. Remove Spring Sear, Pin Sear and Sear.
9. Remove Screw Catch Magazine, Catch Magazine, Catch Head Breech Bolt Plate Catch Head Breech Bolt.
10. Remove Screw Spring Bolt Locking, Bolt Locking, Spring and Catch Safety.
11. Remove Pin Axis Backsight, Backsight Assembly with Plunger and spring.
12. Remove Screw Plate Butt and Plate Butt.
13. Remove Wad Stock Bolt, and unscrew Stock Bolt. Remove Butt.

NOTE:—If a Mk. 1 (T) or 1* (T) is fitted with a No. 32 Telescope remove Telescope first.

To strip Bolt Breech and Magazine

Follow the same procedure as for the Rifle No. 1.

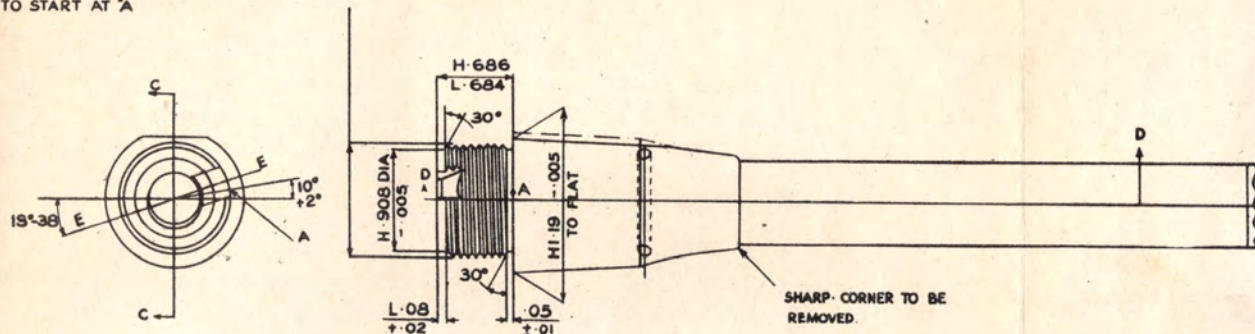
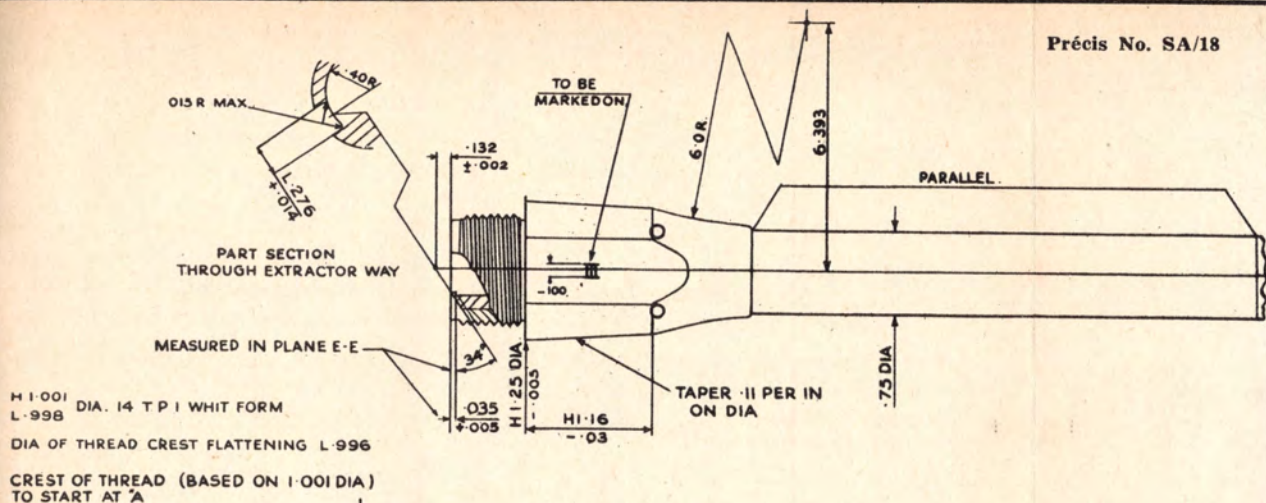
ASSEMBLING

Reverse the above stripping order.

NOTE:—The Stock Bolt in the Rifle No. 4 does not protrude through the Socket but is held in position by a Spring Washer under its head.

ACTION OF MECHANISM

The action of the Rifle No. 4 is in every respect the same as that of the Rifle No. 1.

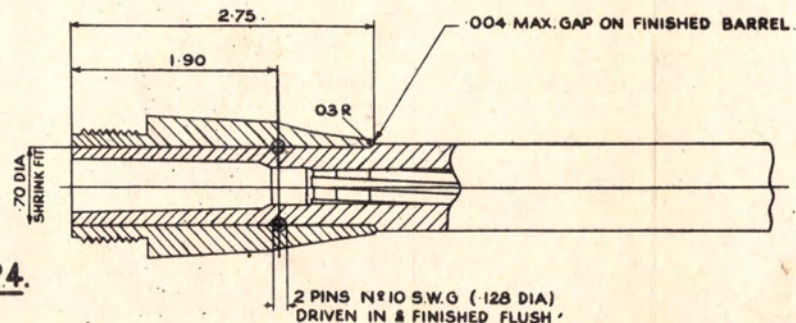


MATERIAL.

BARREL:- STEEL SPEC. V4 OR OTHER APPROVED SPECIFICATION.
SLEEVE:- STEEL SPEC. V4
PINS:- STEEL B.S.S. 32 GRADE 2

FINISH:-

BROWNED EXTERNALLY



BARREL. MK. 3. RIFLE. N°4.

BREECH END.

(THIS BARREL IS OBSOLETE)

SLEEVE TO BE SHRUNK ON & PINNED IN POSITION
INTERFERENCE BETWEEN SLEEVE & BARREL .002 TO .0025

PART OF D.D. (E) 450/119.

PART SECTION D.D.
BEFORE MACHINING EXTRACTOR WAY

SAFETY PRECAUTIONS

Both "Mechanical" and "Applied" Safeties are the same as for the Rifle No. 1.

TESTS, ADJUSTMENTS AND GAUGING

Apart from the normal considerations when examining rifles, the following points should be observed:—

- (a) **Barrels:—**Gauging as for No. 1. Three marks of barrels may be met with. The Mk. 2 has only two grooves while the Mks. 1 and 3 have five. The Mk. 3 barrel is of two parts, the reinforce being in the form of a sleeve shrunk on to the barrel. This type of barrel is obsolete and the rifle will be exchanged (EMER, SA & MG C 503 page 12). Some early types of barrel were machined to .301" only. If any of these barrels are met with they will be passed as serviceable provided that the .301" plug will run.
- (b) **Cartridge Head Space**
Gauging as for Rifle No. 1. Adjustment of incorrect headspace can be effected by the fitting of a longer or shorter bolt-head. These are issued in four sizes named Head Breech Bolt No. 0. to No. 3. They increase in length by increments of .003". Do not discard replaced bolt heads as they may fit other rifles.
- (c) **Striker protrusion**
The protrusion limits are .040" Low, and .050" High. Test and adjust in the same way as for Rifle No. 1.
- (d) **Pull-off**
As for Rifle No. 1.
- (e) **Mainspring**
As for Rifle No. 1.
- (f) **Stocks Butt**
As for Rifle No. 1. Later production of Mk. 1. Rifles are fitted with bodies in which the Butt Socket differs in shape from that of the Mk 1* or early type Mk. 1. Butts made to fit this socket may be modified to fit earlier type sockets if issued for replacement. (EMER, SA & MG C 503 page 17.)
- (g) **Foresight**
Two types of Block Band Foresight may be met with, the Mk. 1 or split type and the Mk. 2 or solid type. In the Mk. 1 a screw blade foresight is fitted which, through the medium of the split block, clamps the blade in position. The dovetail base of the blade foresight is also split to enable the

ARMOURERS' WING

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adjustment of a loose blade by opening out the slot. If solid type blades are met with they will be modified. The solid type or Mk. 2 Block will also be modified by the cutting of a longitudinal saw slot on its top surface to enable the blade to be secured by centre punching. (ACI 561 of 1944.)

(h) **Backsight**

The Mk. 2 or flip type backsight will be replaced by a Mk. 3 or Mk. 4 type leaf backsight. The Mk. 3 and 4 are essentially the same, only having slight constructional differences. (EMER, SA & MG C 507 Mod. Inst. No. 2.) (21 AG—EMERs, SA & MG C 501, page 1.)

(j) **Stocks fore-end**

When fitting a Stocks Fore-end to a Rifle No. 4, the bearing surfaces on the sear lugs, body, collar, and reinforce should be the same whether the Rifle is to be fitted with a telescope or not, and the same as for a Rifle No. 1. If the fore-end is being fitted to a Mk. 1. or 1 * Rifle however, there should be no influence on the rifle forward of the reinforce, all bearings being floated out to leave a clearance all round the barrel. If the fore-end is being fitted to a Mk. 1 (T) or 1 * (T) Rifle for use with telescope, the muzzle end of the barrel should bear for the full length of, and be in the centre of, the raised seating in the front of the barrel groove. The lift required to raise the barrel from this seating should be from 3 to 5 lbs. If it is less than 3 lbs., lower the reinforce seating slightly and if it is more than 5 lbs., lower the seating on the body. Adjust the collar seating as necessary (EMERs, SA & MG C 503 page 2, Issue 5.)

(k) **Bridge Charger Guide**

Test to ensure that the charger way is not too wide. Cases have occurred of chargers passing through into the magazine. The maximum width across the stopping nibs should be .67" and can be gauged with a specially chosen charger measuring .67" across the stops, or with a locally manufactured slip gauge. Any rifle found accepting this gauge will be sentenced "BLR". (EMERs, SA & MG C 503 page 2, Issue 5.)

(l) **Cocking-piece and Locking bolt**

Rifles may still be found fitted with Mk. 2 Cocking-pieces (modified), or Locking bolts. The Mk. 2 modified Cocking-piece has no half-bent while the Mk. 2 Locking bolt has no thread and therefore carries no Safety Catch. These components when found, will be replaced. (ACI 1403 of 1943.) Bolts locking and Safety Catch are issued assembled (ACI 139 of 44.)

(m) **Miscellaneous**

Considerable trouble may be experienced with "sticky bolt action" producing hard extraction and resultant difficulty when firing rapid. This

can sometimes be remedied by chamfering certain sharp edges on the Body and Bolthead. Full details with illustrations will be found in EMERs, SA & MG C 503, page 13. Cases magazine will be found where the rib will not engage the Magazine Catch. File the rib until it engages, but do not touch the Magazine Catch (EMERs, SA & MG C 503, page 7.)

Stocks fore-end originally made to fit Mk. 1*. Rifles have no clearance for Catch Head Breech Bolt. Such force-ends may be issued for fitting to Mk 1 or 1 (T) Rifles, in which case the necessary clearance will be made. (EMERs, SA & MG C 503, page 15). The Mk. 1 Sling Swivell is made in two parts and it may be found that the loop has become loose in the block. In this case the loop should be brazed or welded in its proper position. (EMERs, SA & MG C 504, page 1.)

SIGHTS TELESCOPIC No. 32

The telescopic sight is part of the rifle and will not be separated from it. It will not be used with another rifle nor will the rifle or telescope be exchanged separately.

Before use with the rifle, the telescope should first be tested for wear and correct functioning. This will be carried out as follows.

1. To set up the telescope

- (i) Mount the rifle in a rigid rest which is either portable or in which the rifle muzzle will be directed towards a wall on which is to be placed a chart.
- (ii) Assemble the telescope to the rifle by screwing up clamping screws simultaneously, giving the final tightening to the rear screw.
- (iii) Stop down the object glass of the telescope with a card or metal disc which has hole bored through it. This hole should be centrally placed in relation to the object glass and be not more than 0.17" in diameter H. 0.125" in diameter L. This eliminates parallax.
- (iv) Fix the chart on the wall in the following manner:—
 - (a) 28 ft. from the front lens of the telescope.
 - (b) In a very good light.
 - (c) Horizontal. Test with plumb line down centre of range scale.
 - (d) With the centre of chart the same height as the telescope.

NOTE:—A specimen chart will be found in EMERs, SA & MG C 503 pages 3—6.

2. To check Range-drum

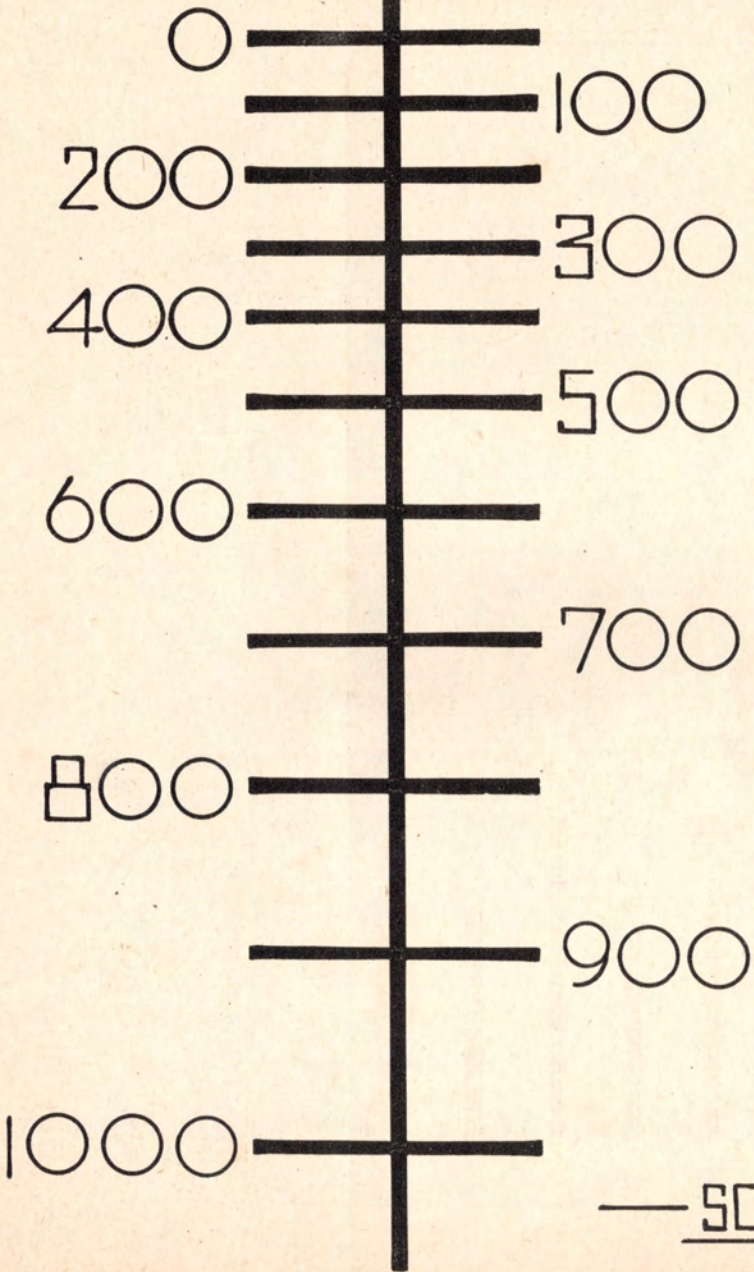
- (i) Set the drum at zero and align the tip of the pointer on the top line of the vertical scale (marked "O" yds). Turn range drum through the scale of ranges, checking each 100 yds with its equivalent line on the chart. Then without adjusting the position of the pointer re-check by working backwards to zero. The telescope fails the test if there is a variation exceeding 50 yds at any range, between the pointer and its equivalent line on the chart.
- (ii) Rotate the range drum through the full range and note that the tip of the pointer does not move from side to side of a straight vertical path. The telescope fails this test if the pointer moves more than one minute to the left or right of the vertical line at any time during its movement.
- (iii) To check for backlash, set the drum at zero and align the tip of the pointer with the top line of vertical scale. Turn the range drum slowly up to its limit and back again. Do this in two distinct continuous movements. Check to see if the pointer returns to its original position, i.e. with the tip of pointer on top line of the scale. If the pointer is more than 50 yds out from its starting position the telescope has failed the test.
- (iv) If the telescope fails in any of the above tests, the whole of the equipment, i.e. rifle and telescope; will be sentenced "BLR."

3. To check the deflection drum

- (i) Set the drum at zero and align the tip of the pointer on centre line of the deflection scale. Turn the drum and check each two minutes of angle of left deflection on the drum with equivalent line on the chart. Then without adjusting the position of the pointer re-check by working back to zero. Repeat the above for minutes of right deflection. The telescope has failed the test if a variation of more than one minute in either direction from the given deflection line is found.
- (ii) Rotate the drum rapidly through the full scale and watch for any variation in height of the pointer. If any variation exceeds one minute above or below the horizontal path the telescope has failed.
- (iii) To check for backlash, set the drum at zero and align the tip of the pointer on centre line of the deflection scale. Turn the drum slowly to its left deflection limit and back again to zero. Do this in two distinct continuous movements. Check to see if the pointer on the completion of the movement returns to its original position, i.e. the tip of the pointer on the centre line of the scale. Then repeat this test for right deflection. If an error of more than one minute is found between the starting position of the pointer and its final position, the telescope has failed the test.

Note: Backlash tests are not necessary on the Mk. 3. Telescope, which has spring-loaded range and deflection drums.

RANGE SCALE

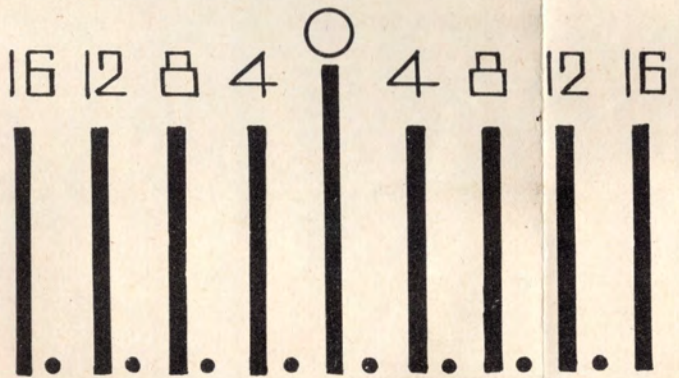


— SCALE FULL SIZE —

FOR CHECKING HOLDER & PADS



DEFLECTION SCALE



RIFLES No. 4

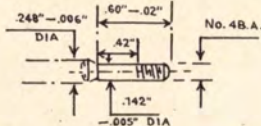


FIG. 1.
SCREW, PROTECTOR, FORESIGHT
(EARLY MANUFACTURE)

THESE SCREWS ARE FOR USE ONLY WITH PROTECTORS, FORESIGHT, MARK I. INDENT FOR UNDER SECTION B.I. — V.A.O.S. AS SCREWS, PROTECTOR, FORESIGHT, Mk. I. CAT. No. BB.8036.

PROTECTORS FORESIGHT

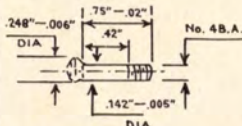


FIG. 2.
SCREW, PROTECTOR, FORESIGHT
Mk. 1.

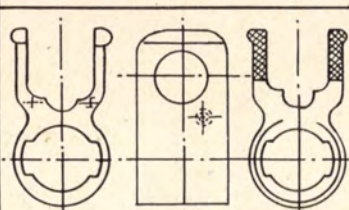


FIG. 3.
PROTECTOR, FORESIGHT, Mk. I.
(SECTION B.I., V.A.O.S. CAT. No. BB.8000.)

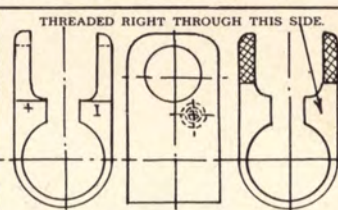


FIG. 4.
PROTECTOR, FORESIGHT, Mk. I.
ALTERNATIVE PATTERN.
(SECTION B.I., V.A.O.S. CAT. No. BB.8000.)

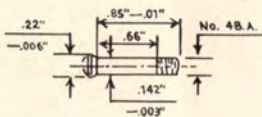


FIG. 5.
SCREW, PROTECTOR, FORESIGHT, Mk. 2.
SCREW, GUARD, TRIGGER, BACK.
THIS SCREW IS FOR USE ONLY WITH THE
PROTECTORS, FORESIGHT, Mk. 2. AS SHOWN
ON THIS PLATE. INDENT UNDER SEC. B.I.
V.A.O.S. AS SCREW, GUARD TRIGGER
BACK. CAT. No. BB.8010.

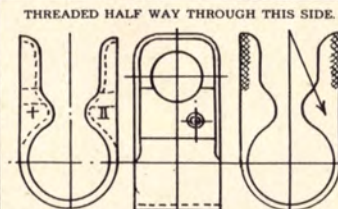


FIG. 6.
PROTECTOR, FORESIGHT, Mk. 2.
(STEEL STAMPING WITH TWO STEEL INSERTS
WELDED OR BRAZED INTO POSITION.)

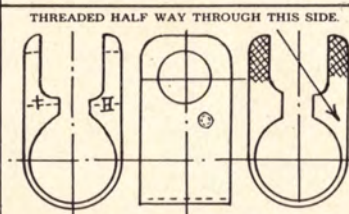


FIG. 7.
PROTECTOR, FORESIGHT, Mk. 2.
ALTERNATIVE PATTERN.
STEEL CASTING.

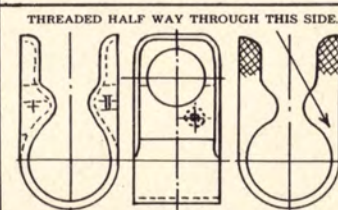
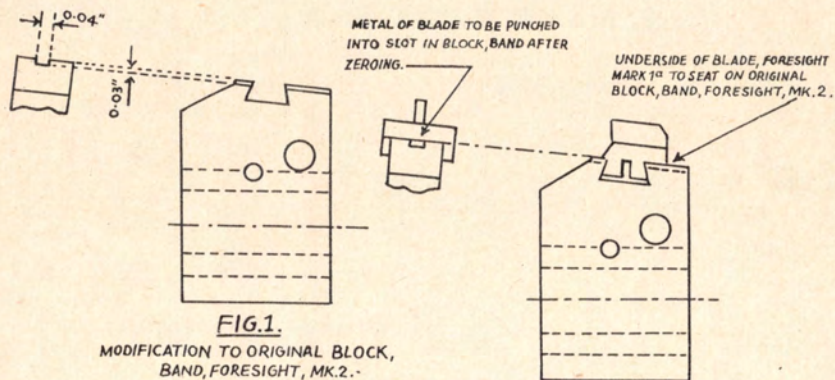
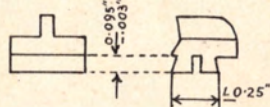
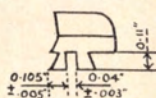


FIG. 8.
PROTECTOR, FORESIGHT, Mk. 2.
ALTERNATIVE PATTERN.
(STEEL STAMPING WITH TWO STEEL INSERTS
WELDED OR BRAZED INTO POSITION.)

+— MANUFACTURER'S INITIALS STAMPED HERE. 1 OR 2—MARK NUMBERS STAMPED HERE.
PROTECTORS (FIGS. 6, 7 AND 8) WILL BE INDENTED FOR UNDER SECT. B.I.
V.A.O.S. AS PROTECTORS, FORESIGHT, Mk. 2. CAT. No. BB.8003.



RIFLE N°4.



- (iv) If the telescope fails in any of the above tests, the whole equipment i.e. rifle and telescope, will be sentenced "BLR."

4. To detect faults in the holder or pads

- (i) With range and deflection drums set at zero, align the tip of pointer on the centre of diagram at top right corner of chart.
 - (ii) Remove the telescope from the rifle and replace by holding the telescope at the front end. Screw up the clamping screws in the normal way, whilst still holding the telescope at the front, tightening the rear screw last. The pointer should still be aligned on the centre of the diagram.
 - (iii) Remove the telescope and replace but this time hold it at the rear end and, tighten the front screw last. The pointer should still be aligned on the centre of the diagram.
 - (iv) If either of the above tests show the pointer is more than a minute from the centre of the diagram when the telescope is replaced the whole equipment, i.e rifle and telescope will be sentenced "BLR". A limit of one minute in either direction is marked on the chart.
5. Having ascertained that the telescope can pass the foregoing tests, it can now be zeroed to the rifle. Before doing this however it is advisable to test the rifle for grouping without the telescope attached. Fire three groups of five rounds each at either 100 yds or 30 yds. The average of the three groups should be 3 ins $\times$ 3 ins at 100 yds or 1 in $\times$ 1 in at 100 yds. If the rifle fails to group examine it as you normally would for badly fitting fore-end, wear in barrel, loose butt, loose screws, badly fitting breech bolt or loose sights. If the rifle cannot be made to group properly without the telescope there is no point in trying to zero and the whole equipment should be sentenced "BLR."

Assuming the telescope and rifle to be correct, attach the telescope to the rifle and set the range drum to 100 yds and the deflection drum to zero.

With the rifle rested, fire a group of shots at 100 yds range. The MPI of the group of shots should be at the point of aim. If there is any error, alter the range or deflection drum, according to the direction of the error, and re-fire. Continue like this until the position of the MPI is correct. Through altering the range and deflection drums, different readings will now be found from the 100 yds and "O" minutes to which the drums were set at first. Without altering the position of the pointer, these drums must now be brought back to their original positions. To do this, use the adjusting tool which is issued with the telescope. The procedure is the same for either drum. Loosen off clamping ring at the same time holding

ARMOURERS' WING

Précis No. SA/18

range or deflection scale, and the central adjusting pivot tightly. Still holding the central adjusting pivot tightly (this retains the pointer in the position to which it has been moved during firing,) move the scale back so that the original mark (100 yds on range scale or "O" minutes on deflection scale) is opposite the arrow. Retighten clamping ring.

In addition to the telescope, the Rifle No. 4 Mk I (T) and I* (T) are fitted with a cheek rest, screwed to the top edge of the butt. It is permissible to adjust this rest to fit a particular firer by reducing it as necessary if another, more suitable rest cannot be found.

Details of the foregoing tests and adjustments (except zeroing) will be found in EMERs, SA and MG C 503 pages 3—6. The official zeroing procedure is to be found in Small Arms Training, Vol I, Pamphlet No. 3 Appx V.

RIFLES No. 4 Mk 1, 1*, 1 (T) and 1* (T)

(Regulations affecting the above equipments)

EMERs

SA & MG	C 502 page 1	Issue 1	General description.
	C 503 page 1	Issue 5	Method of fitting Stock fore-end.
		2 Issue 5	Examination of Charger Guide.
		3 Issue 2	Instructions to guide checking of Telescope Sighting No. 32.
		7 Issue 1	Fitting of Magazine. Numbering of mags.
		8 Issue 2	Accuracy Tests.
		10 Issue 1	Parkerised barrels.
		12 Issue 1	Mk. 3 barrels declared obsolete.
		13 Issue 1	Adjustment for sticky bolt action.
		15 Issue 1	Provision of clearance in fore-end for bolt-head catch.
		17 Issue 1	Fitting of butt stocks.
		19 Issue 1	Adjustment of sling swivel.
	pages 20-21	Issue 1	Numbering of rifles.
	C 504 page 1	Issue 1	Repair to Mk. 1 Sling swivel.
	C 507	Mod. Inst. 0	Replacement of backsights by Mk. 1.
	C 507	Mod. Inst. 1	Summary of modifications.
		Mod. Inst. 2	Replacement of Mk. 2 Backsights with Mk. 3.
	C 509	Misc. Inst. No. 1	Identification of backsight assemblies.
		Misc. Inst. No. 2	Identification of foresight blades.
	C 509	Misc. Inst. 2	Identification of Blades Fore-sight.

21 AG LOCAL EMERs

SA	C 500	page 1	Backsight Assemblies — comparison.
	C 503	page 1	Fitting of magazines.
	C 507	page 1.	Summary of modifications.

A.C.Is.

1941	1456	Marking of.
1942	808	Loading.
	943	Mk. 1 (T).
	1349	Bolt-locking and Cocking-pieces Mk. 2.
	2186	Blades and Block band fore-sight, solid type.
	2554	Fitting upper bands (hinged type).
1943	7	Securing of screws.
	561	Blades fore-sight, solid or split type.
	1550	Modification to magazine case.
	1403	Fitting of Bolts locking Mk. 1 and Cocking-piece Mk. 2.
1944	139	Bolts locking and Catches safety.
	339	Mk. 1 Marking with (T) for snipers rifles.
	411	Blade and Block fore-sight, solid type.
	1226	Mk. 1 (T). Testing for worn barrels.
1945	298	Zeroing.
	239	Mk. 1 (T). In Chests, SA. No. 15.
1947	902	Numbering of Magazines.

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21 AG AND RHINE ARMY TECHNICAL BULLETINS

SA & MG	para 1	Parkerised bores. Accuracy of Snipers Rifles.
	para 1 & 14	Incorrect positioning for nib of Auxiliary spring.
	para 1 & 29	Fitting of Swivels sling Mk. 1 (T).
	para 64	Hole for leg of Safety catch not machined.
	para 64 & 97	Bulged chambers, hard extraction.
	para 82	Zeroing.

RIFLES No. 5 Mk 1

General Information

The Rifle No. 5 is, in principle and design similar to the No. 4, and it is really a Rifle No. 4 modified for use in jungle country, by a considerable lightening and shortening. The majority of the weight has been saved on the barrel and furniture. The barrel is approx. 6½" shorter than the barrel of the No. 4 Rifle and is fluted at the reinforce. A certain slight saving has been made on various other components.

A flash eliminator is fitted to offset the greater flash from the shorter barrel while a rubber pad with a cap is fitted to the butt, in the place of the ordinary butt plate, to counteract increased shock.

General Characteristics

Weight	7 lb 2½ ozs.
Length	(with normal Butt) 3 ft 3½ ins.
Calibre and Rifling	.301"—.304" five grooves, left hand turn. One turn in ten inches.
Magazine Capacity	10 rounds
Sight radius	23.14 inches
Backsight	Leaf type with adjustable aperture slide. Graduated from 200 yards—800 yards in increments of 100 yards. Mk 1 adjusted by elevating screw. Mk 2 adjusted by elevating catch. Both types are fitted with a fixed aperture battle-sight for 300 yards.
Foresight	Blade. Eight Heights from —.03" to +.075" Variation .015".

STRIPPING

Follow the same sequence as for the Rifle No. 4 Mk 1 bearing in mind that there is no band upper and therefore no need to remove the protector foresight which is integral with the flash eliminator. The flash eliminator is secured to the barrel by two taper pins but this component should not normally be removed. Also in place of the normal butt plate there is a shoulder pad secured to the butt by a cap and screws. Unscrew screw cap butt and cap and pad will come away. The cap also secures a staple to the right side of the butt which acts as an anchorage for the sling.

ARMOURERS' WING

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ASSEMBLING

Reverse order of stripping.

ACTION OF MECHANISM

The action of the Rifle No. 5 is in every respect the same as that for the Rifle No. 1 and No. 4.

SAFETY PRECAUTIONS

Both "Mechanical" and "Applied" safety actions on the Rifle No. 5 are identical with those of the Rifle No. 1 and No. 4.

TESTS, ADJUSTMENTS AND GAUGING

Follow the same sequence as with the Rifle No. 4 Mk 1. The gauging limits and the gauges used are identical with those for the Rifle No. 4 Mk 1, except that the barrel low limit is .301" instead of .303". Adjustments and repairs as detailed in the chapter on Rifle No. 4 will also apply to this rifle. In addition, when examining a Rifle No. 5 it is important to watch the following points:—

- (a) **Flash Eliminator:—** Always ensure that this is secure as looseness of this component will affect the foresight as the block and band foresight are integral with the flash eliminator. The flash eliminator is secured to the barrel by two taper pins, some of the pins will be found which protrude beyond the sides of the eliminator. Any attempt to drive these pins further home may lead to serious local puckering of the barrel; therefore the ends should be filed off flush with the flash eliminator. (EMER S.A. & M.G. C513 page 5).
- (b) **Stocks Butt:—** The shoulder pad fitted to this component should be examined for wear and secureness. See that the cap holds the pad in position and that the butt is not split around the screw cap shoulder pad.

(c) Method of Fitting and Numbering of Stocks Fore-end. —

The Fore-end must fit tightly at the rear end between the sear lugs and the butt socket of the body. After the Rifle has been fired, a gap not exceeding .01" is permissible between the rear face of the fore-end and the butt socket, provided that:—

- (i) There is a full bearing of the sear lugs on the fore-end.
- (ii) With the front trigger guard screw unscrewed there is no noticeable backward or forward movement of the fore-end.

A good bearing must be obtained on the body surfaces, around the hole for the front trigger guard screw, and along the narrow ledge on each side of the magazine opening, extending for a distance of not less than $2\frac{1}{2}$ " to the rear of the front trigger guard screw hole. It is important that this bearing is even throughout its surface, and that the fore-end is clear on either side of the barrel socket of the body. (See Section AA Fig. 4.)

There must be a good bearing of the reinforce of the barrel, extending for the full length of the reinforce and for about half of the reinforce seating in width. It is important that this bearing is in the centre of the reinforce seating of the fore-end, the sides being entirely clear of the barrel. (See Section BB Fig. 4.)

When fore-ends are encountered which are low at the reinforce seating, and difficulty is experienced in obtaining a bearing at this point, an effort should be made to fit them by lowering the body bearing. If a bearing at the reinforce cannot be obtained when a maximum of .08" has been removed from the body bearing, the fore-end will be discarded. After lowering the body bearing, the collar will be adjusted until the fore-end is compressed between the guard and the body, and the collar is just gripped. The trigger guard, with the front and back screws in position, will then be set down on to its seating in the fore-end for as great a length back from the front screw as possible. When fore-ends are fitted in this manner, it may be found that the top surfaces of the stock fore-end, which contact the handguard, may require easing to allow the handguard to fit into the retaining ring.

The barrel seating at the muzzle end of the fore-end will be "floated out" leaving a clearance of not less than 0.04". (See Section BB Fig. 4.) The barrel must be free of influence from the fore-end forward of the reinforce. (See Sections CC and DD Fig. 4.)

The handguard must be clear of the barrel. Care must be taken to ensure that the rivets and metal strengthening pieces in the handguard are well clear of the barrel. (See Sections BB and CC Fig. 4.)

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When the fore-end has been fitted in accordance with these instructions the weight of the trigger pull-off will be checked and adjusted if necessary. The pull-off should be:—

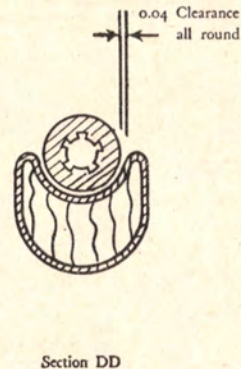
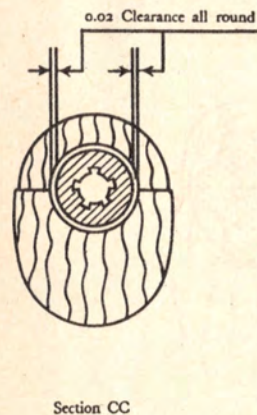
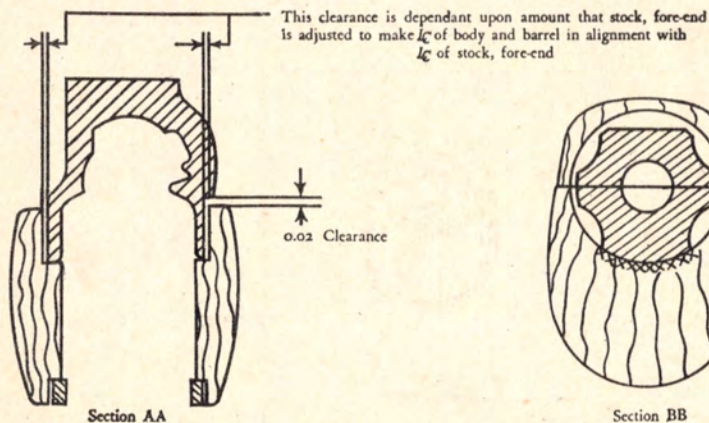
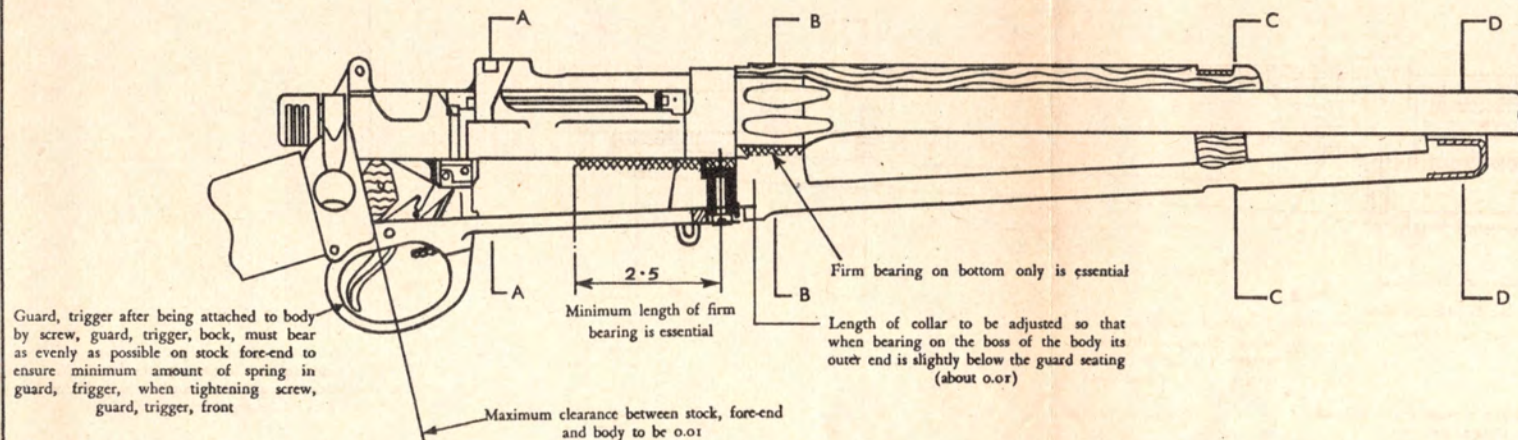
First Pull 3 to 4 lb.

Second Pull 5 to 6½ lb.

Finally, the Serial Number of the Rifle will be clearly stamped on the fore-end with (approx.) 1/8" stamps, in the position as indicated in E.M.E.R. S.A. and M.G. C519 Misc. Inst. No. 1. Fig. 1.

(Vide E.M.E.R. S.A. and M.G. C 513 page 6 Issue 1.)

XXXXXX Denotes bearing surfaces for stocking



Dimensions are in inches

RIFLES No. 5 Mk 1

Regulations affecting the above equipment

E.M.E.Rs.

S.A. & M.G. C513 page 1 Issue 1	Parkerised barrels.
S.A. & M.G. C513 page 3 Issue 1	Adjustment of sticky bolt action.
S.A. & M.G. C513 page 5 Issue 1	Reducing protruding ends of flash eliminator pins.
S.A. & M.G. C514 page 1 Issue 1	Repairs to Mk 1 sling swivel.
S.A. & M.G. C519 Misc. Instr. No. 1	General Information.
C519 Misc. Instr. No. 2	Identification of Backsights assemblies.
C513 page 6 Issue 1	Fitting and numbering of fore-end stocks.
C517 Mod. Instr. No. 1	Modification and Identification of blades foresight.

ARMOURERS' WING

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ARMY COUNCIL INSTRUCTIONS

230

1945

Zeroing.

ZEROING OF RIFLES

Except in the case of the zeroing of the Rifle No. 4 Mk 1 (T) and Mk 1* (T), which entails the adjustment of a Telescope and has been dealt with in Précis No. SA/18, the zeroing of Rifles can be dealt with as a single subject.

By the term "zeroing" we mean the adjustment of the sights of a weapon so as to give the correct position of the shots on the target in relation to the point of aim.

An Armourer is always concerned with the permanent zeroing of a Rifle, which is effected by the adjustment of, or the fitting of a new blade to the Foresight. In passing it is as well to remember that a temporary adjustment for errors in elevation, can be made by altering the Backsight, e.g. if the mean point of impact (MPI) of a group of shots is below the correct position it can be corrected by raising the Backsight, similarly if an error above the correct position is obtained it can be corrected by lowering the Backsight. If the Rifle is fitted with a Windgauge Backsight, errors of deflection can be adjusted in the same way. It will be seen that in each case the Backsight is moved AWAY from the error.

In adjusting the Foresight however, the opposite rule applies. If a Rifle is shooting low the Foresight must be moved down or TOWARDS the error (i.e. a lower blade must be fitted).

To enable Rifles to be zeroed, a moveable blade is fitted into a dovetail base, thereby allowing the blade to be moved from side to side to correct lateral errors. The Foresight Blades are also made in varying heights so that the vertical errors can be corrected by the replacement of the existing blade by one of a different height. There are varying sets of blades for the different types of Rifles, but on all those Rifles dealt with in the foregoing instructions there is one common rule. A blade marked "O" is provided, the tip of which when fitted to the Rifle is exactly one inch above the axis of the bore. All other blades graduate from this "O" or zero blade either above or below it in constant increments. In the case of British Rifles this increment is .015". If a blade is lower than the zero blade it is referred to as a "minus" blade, and if it is above it becomes a "plus" blade.

ARMOURERS' WING

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All blades are marked so as to be easily recognised, those below the zero having as a prefix the minus sign e.g. —.015". The "plus" sign is not used, therefore a blade with only a figure, e.g. .015", is always a plus blade.

The Mean Sight Radius is the distance from the aperture or "U" of the Backsight to the tip of the Foresight, and this differs on the various Rifles.

It will be appreciated that the Sight Radius governs the amount of adjustment made on the target by the fitting of a different size of blade foresight. The longer the Sight Radius the smaller will be the angle made between a line from the Backsight to the old blade and a line from the Backsight to the new blade.

To assess the difference which will be made by a change of Foresight use the following formula:—

$$\frac{\text{RANGE X DIFFERENCE IN HEIGHT OF BLADES}}{\text{SIGHT RADIUS OF WEAPON}} = \text{VARIATION ON TARGET.}$$

To give a simple example, assume that we are going to replace an "O" blade with a —.015" blade on a Rifle No. 4, the Sight Radius of which is 28.74" and our range is 100 yards. By fitting a LOWER blade the resultant MPI will be HIGHER by:—

$$\frac{100 \times 36 \times .015}{28.74} = 1.87''$$

As we included the figure 36 in our top line, thereby bringing our 100 yards to inches, our answer is in inches. So that by replacing an "O" blade with a —.015" on a Rifle No. 4 we would raise our MPI by 1.87" at 100 yards.

With a Leaf Backsight fitted to a Rifle, the aperture or slide should be set at the lowest graduation, namely 200 yards. It is not however satisfactory to zero a Rifle at this range, and the ranges used are 100 yards or 25 yards. It will be seen therefore, that the resultant MPI, to be correct, would have to be somewhere above the point of aim, so that when actually firing at 200 yards, or at other ranges with the correct reading on the sight the shots will group AT the point of aim.

In the case of Rifle No. 4 fitted with a Mk 2 Backsight, the apertures of which are sighted for 300 and 600 yards, the Rifle will be zeroed using the 300 yard aperture with a Bayonet fixed. Therefore the correct position of the MPI at 100 yards or 25 yards would be even higher than with a leaf sight.

The following table shows the various particulars applicable to each type of Rifle. This table does not include the Rifle No. 2, as this Rifle fires .22 inch ammunition and therefore the zeroing rules are rather different.

RIFLE ZEROING TABLE

RIFLE	No. of Blades	Lowest Blade	Highest Blade	Range	Variation in MPI with one alteration of Blade	Correct Position of MPI in relation to Point of Aim
No. 1	7	— .06"	.03"	100 yds 25 yds	2.77" 0.69"	3" directly above ¾" directly above
No. 3	9	— .015"	.135"	100 yds 25 yds	1.70" 0.50"	3" directly above ¾" directly above
No. 4	8	— .03"	.075"	100 yds 25 yds	1.87" 0.475"	3" directly above ¾" directly above
No. 4 with Mk 2 Back Sight	8	— .03"	.075"	100 yds 25 yds	1.87" 0.475"	6" directly above 1½" directly above
No. 5	8	— .03"	.075"	100 yds 25 yds	2.33" 0.582"	3" directly above ¾" directly above

Lateral adjustment will be made to the Foresight with the aid of a "Tools Foresight, Cramp." There are different patterns of these for the various Rifles, namely:—

Tools Foresight, Cramps No. 1. For the No. 1 and No. 2 Rifles

"	"	"	No. 2.	"	"	No. 3	"
"	"	"	No. 3.	"	"	No. 4	"
"	"	"	No. 4.	"	"	No. 5	"

On the Cramps Nos. 1 and 2 there is a deflection scale to guide adjustment.

Rifles No. 2 will always be zeroed at 25 yards. The sight reading on the Backsight is not important as it will never be necessary, or possible, to fire the Rifle at any great range. It is advisable however, to zero all No. 2 Rifles with a reading of 200 yards on the Backsight, bearing in mind that the MPI must be AT the point of aim and not above it. Lateral errors can be adjusted with the Cramps Foresight No. 1.

In marking adjustments to any of these Rifles for lateral errors, it must be borne in mind that a Blade Foresight can only be moved laterally until its edge

ARMOURERS' WING

Précis No. SA/19A

is flush with the side of the Block. If further lateral adjustment is needed, the Rifle should be examined for fit of Fore-end, Bolt and condition of Barrel etc.

If an Armourer is satisfied that the Rifle is mechanically sound i.e. correctly assembled and adjusted, and that all possible adjustment has been made during zeroing; and finds that (a) the Rifle still fails to group, or (b) the MPI is still incorrectly positioned, he will carry out the test as detailed in Small Arms Training, Vol. 1., Pamphlet 1., Appx. 1. This lays down that a group of ten shots will be fired at 200 yards (Rifle rested) and should form a group $8'' \times 8''$ with an MPI not more than $4''$ from the point of aim. If the Rifle does not pass this test, the position of the shots will be accurately marked on an AF B 202, and the Rifle together with the diagram will be forwarded with an AF G 1045 to the nearest REME Workshop.

In the case of Rifles No. 2 this test should be carried out at 25 yards. Two groups of five rounds each should be fired and form a group $1\frac{1}{2}'' \times 1\frac{1}{2}''$, with an MPI at the point of aim. When forwarding a Rifle No. 2 to REME Workshops after a Barrel Test, the targets should accompany the Rifle with an AF B 202.

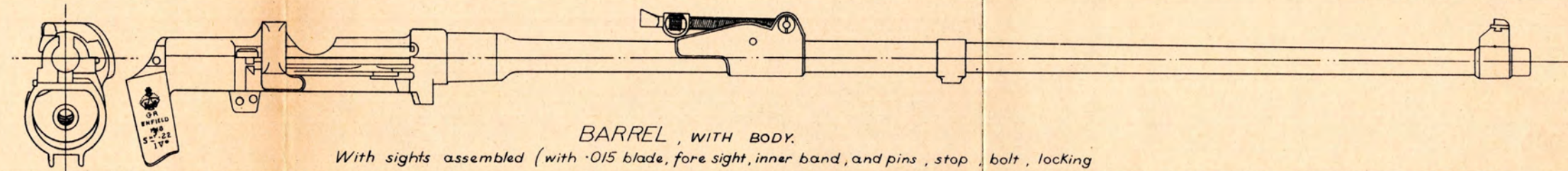
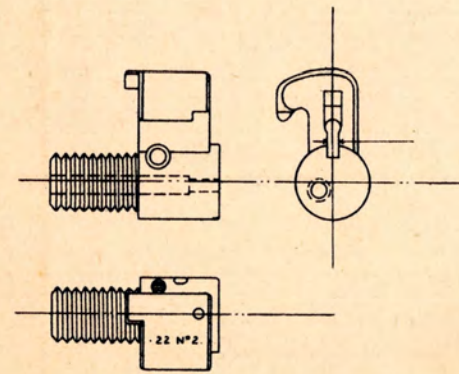
The following is a list of faults which would tend to give inaccurate shooting. These points should be checked before attempting to zero and re-checked before carrying out the Barrel Test:—

1. Badly fitting Stock Fore-end.
2. Loose Butt.
3. Loose Screws.
4. Loose or damaged Blade Foresight.
5. Loose Block Band Foresight.
6. Badly fitting Bolts Breech { resistance column and resistance lug
 { should bear evenly with Bolt closed
7. Condition of Barrel for wear, bends, bulges or cordwear.
8. Loose Backsight.

SPECIAL COMPONENTS OF THE RIFLE, N° 2, MK IV*, .22 INCH RIM — FIRE

The remainder of the components of this pattern rifle are common to Rifles, N°s I, M°s III and III *

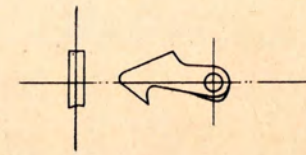
HEAD, BREECH BOLT.



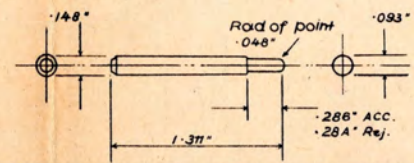
BARREL, WITH BODY.

With sights assembled (with .015 blade, fore sight, inner band, and pins, stop, bolt, locking)

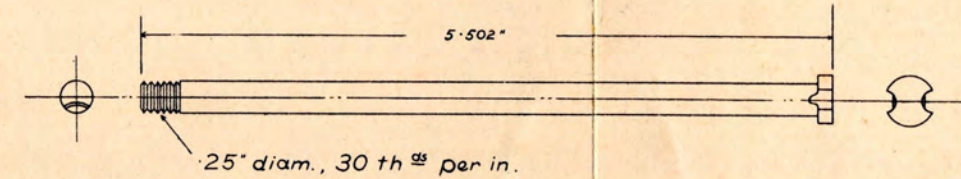
EXTRACTOR.



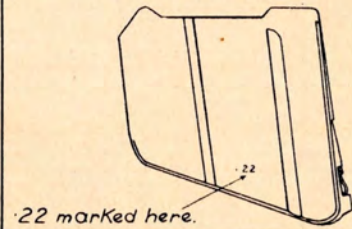
PIN, FIRING.



STRIKER.



CASE, MAGAZINE.



BAYONETS AND SCABBARDS

BAYONETS

General Information

The Bayonet is a close range killing weapon designed for use attached to the muzzle end of a Rifle, and in some cases by hand as a fighting knife.

There are various No.'s of Bayonets to suit the pattern of Rifle to which they are intended to fit and be attached to for use. It will be noted that the No. of the Bayonet coincides with the No. of the Rifle viz:—

Bayonets No. 1 Mk 1	for Rifles No. 1 Mk 3 and 3*.
Bayonets No. 3 Mk 1	for Rifles No. 3 Mk 1 and 1*, also the Rifle .30" P '17.
Bayonets No. 4 Mk 1	} for Rifles No. 4 Mk 1 and 1*, also Carbines M/C Sten 9 mm Mk 5.
2	
2*	
3	
Bayonets No. 5 Mk 1	for Rifles No. 5 Mk 1 and Rifle Self Loading 7.92 mm.

General Characteristics

Bayonet No. 1 Mk 1

Weight	16 ozs.—18 ozs.
Length	21½ ins. approx.
Length of Blade	17¼ ins. approx.

The Blade has a single cutting edge tapering to a point. It is grooved for strength. At its upper end is brazed the Crosspiece on which is formed the Bayonet Boss Hole, which fits over the Bayonet Boss on the Nosecap of the Rifle.

The Tang carries the Grips, Pommel and Bolt. The latter secures the Bayonet to the lug on the Nosecap of the Rifle.

Bayonet No. 3 Mk 1

This Bayonet is similar in all respects to the Bayonet No. 1 Mk 1 but it has a longer Crosspiece to suit the Rifle No. 3 and the Grips are grooved to afford ready recognition.

Bayonet No. 4 Mk 1

Weight	8 ozs. approx.
Length	10 ins. approx.
Length of Blade	8 ins. approx.

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The Blade is of "cruciform" section, tapering to a point. Integral with the Blade is the Socket which is fitted with a Catch to secure the Bayonet to the muzzle of the Rifle No. 4 or Carbine M/C Sten 9 mm Mk 5. This Bayonet is obsolescent.

Bayonet No. 4 Mk 2

Is similar in all respects to the Bayonet No. 4 Mk 1, but the Blade is a round taper ending in either a point or a "screwdriver end".

Bayonet No. 4 Mk 2*

Is similar in all respects to the Bayonet No. 4 Mk 2 but the Blade and Socket, are separate components, welded or brazed together. Because of this, the Socket is of slightly larger dimensions.

Bayonet No. 4 Mk 3

Is generally similar to the Bayonet No. 4 Mk 2*, but is fabricated. The Socket being composed of two portions welded or brazed together, the whole being welded or brazed to the Blade.

Bayonet No. 5 Mk 1

Weight	10 ozs. approx.
Length	12 ins. approx.
Length of Blade	8 ins. approx.

Designed primarily for Jungle Warfare in conjunction with the Rifle No. 5, this Bayonet is a similar, but smaller and lighter version of the Bayonet No. 1 Mk 1.

The Blade is grooved for strength, has a single cutting edge tapering to a point; the last two inches of the back of the Blade are tapered off to form a cutting edge also.

The ring of the Bayonet Crosspiece fits over the Flash Eliminator.

STRIPPING AND ASSEMBLING

Bayonet No. 1 Mk 1 and Bayonet No. 3 Mk 1

The only parts which are detachable are the Bolt with Spring and Nut and the Walnut wood Grips with two Screws and Nuts. As the end of the Bolt is rivetted over the end of the Nut to prevent the Nut from working loose, it should be stripped only in the event of a new Bolt being required, during re-browning, or when, owing to want of care, it has become rusted in. When it has to be removed and re-assembled, sufficient of the rivetted end should be preserved to permit of re-rivetting: when insufficient remains, the Nut may be slightly shortened.

The flush end of each Bolt is blended off with the Pommel during manufacture, consequently, owing to variation in contour, it is necessary to keep each Bolt to the Bayonet in which it has been fitted.

As some variation occurs also in the contour of the Tang of the Blade, it is desirable that the Grips should be kept to the Bayonet to which they are fitted.

Bayonet No. 4 Mk 1, 2, 2*, 3

The only parts which are removable are the Catch, Plunger and Spring.

To remove the Catch, pass a punch through the Catch and press the Plunger downwards, lift out the Catch and carefully withdraw the Plunger and Spring.

As some variation occurs in the locking recesses in the Sockets and Catches it is desirable that the Catches are re-assembled to the Bayonet from which they have been removed.

Bayonet No. 5 Mk 1

As for the sequence stated for the Bayonets No. 1 Mk 1 and No. 3 Mk 1.

TO ASSEMBLE REVERSE THE ORDER OF STRIPPING IN EACH CASE.

EXAMINATION, TESTS AND ADJUSTMENTS

Bayonets No. 1 Mk 1

1. Examine the Blade for straightness, alignment with the Tang and for general condition. When bent, or very rusty, the Bayonet will be exchanged.—Factory Repair. See that the Crosspiece and Pommel remain secure on the Tang—they are brazed on in manufacture.

2. At stations and workshops provided with a Box Test, DOUBTFUL Bayonets will be tested as follows:—

Insert the point of the Blade in the upper end of the block attached to the curve, with the right flat of the Blade, marked with an "X", on the outer or convex side; force the Blade around the curve taking care that it is not overstrained beyond the limit of the curve, then immediately release it, and examine for straightness. Blades which take a permanent set after testing must be exchanged. (Factory Repair).

When testing, care must be taken to see that the right flat marked "X" is always on the convex side.

3. Examine the Grips for condition and test the security of the Nuts and Screws.

4. See that the Sword Bar Slot is clean, that the Bolt operates freely, and that the strength of the Spring is satisfactory. Assemble the Bayonet

ARMOURERS' WING

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to the Rifle, if it is excessively loose on the Rifle, ascertain whether an exchange for a closer fitting Bayonet from another Rifle will effect an improvement, and if so, whether the worn Bayonet is a better fit on the Rifle from which the closer fitting Bayonet was taken. When such an exchange proves satisfactory, re-number the Bayonets to the Rifles. When a more suitable Bayonet cannot be found, the Nosecap of the Rifle is probably at fault, and should be brought to the notice of CISA's examiners or the AIA at their next visit. When the Sword Bar Slot and the hole in the Crosspiece are badly worn, the Bayonet will be exchanged. (Factory Repair). When considerable longitudinal play is found, the fault may be due to a worn Bolt in the Bayonet in which case a new Bolt should be fitted.

5. Rusty Bayonets should be reported to the CO for necessary action. When cleaning a polished Blade, the Nosecap Stud Hole in the Crosspiece and the Sword Bar Slot in the Pommel, care should be taken to avoid the use of abrasives. Worn fine emery cloth only should be employed in removing rust.

When a Blade is pitted with rust, no attempt should be made to remove entirely such marks, as the removal of metal involved would tend to weaken the Blade.

6. When fitting new Grips, it may be necessary occasionally to modify the contour to conform reasonably with that of the Tang and the Pommel, but they should be left well prominent to allow for subsequent repair, the edges being rounded off slightly.

7. When fitting a new Bolt, it may be necessary to adjust the locking face slightly to enable the Bolt to engage over the Sword Bar of the Rifle Nosecap: the outer end should also be blended with the Pommel.

Bayonets No. 3 Mk 1

As for Bayonets No. 1 Mk 1.

Bayonets No. 4 Mk 1, 2, 2* and 3

1. Examine the Blade for straightness and alignment with the Socket and ensure that all welded joints are secure.

2. Test the Catch for functioning and freedom.

3. Assemble the Bayonet to a Rifle, if it is excessively loose on the Rifle, ascertain whether an exchange for a closer fitting Bayonet from another Rifle will effect an improvement, and if so, whether the worn Bayonet is a better fit on the Rifle from which the closer fitting Bayonet was taken. This procedure will usually be found to successfully remedy an incorrectly fitting Bayonet. If this proves to be unsuccessful, examine the locking lugs for burrs etc.

4. The weight required to remove the Bayonet from the Scabbard should be 9 lbs. To test, assemble the Bayonet and Scabbard to the Rifle and, with the Rifle standing vertically, lift the Rifle by the Scabbard. The Rifle should lift clear of the floor before the Rifle and Bayonet begin to slide out of the Scabbard.

Bayonets No. 5 Mk 1

As for the Bayonets No. 1 Mk 1, and No. 3 Mk 1 except that there is at present no Box Test.

No. 5 Bayonets may be found in the Service which will not assemble to the Rifle because of dimensional errors in manufacture.

To ascertain if Bayonets are faulty, and at the same time eliminate any error due to variation in dimensions of Rifles, three Rifles will be selected with the diameter of the Flash Eliminator (where the Crosspiece of the Bayonet fits) between the limits: high 0.890" and low 0.888". Any Bayonet which will not fix on all three Rifles will be sentenced BLR and returned to RAOC for transmission to the factory for repair.

A label bearing the reason for its return and also quoting EMER SA and MG V 154 page 1 (of which this is a copy) will be secured to the Bayonet.

POLISHING OF BAYONETS

The Blades, Crosspieces and Pommels of Bayonets in possession of troops and held in store by RAOC will be polished as follows, vide EMER SA and MG V 153, page 3.

Bayonets No. 1	}	from a line 1" below the Crosspiece.
Bayonets No. 3		
Bayonets No. 4		from a line 1/2" below the Pommel
Bayonets No. 5		

In the case of Bayonets No. 1 and No. 3, if they are received unpolished, the polishing will be carried out without removing the Grips, Screws and Nuts, due care being taken to avoid injury to the same. The removal of Grips by troops for cleaning, scraping, or staining with colouring matter is prohibited: when met with, Armourers should report the matter for disciplinary action.

RE-BROWNING OF BROWNE BAYONETS

For the Browning Process, see separate Chapter.

The Crosspiece, Pommel and Tang in the case of Bayonets No. 1, 3 and No. 5, and the Socket of the Bayonet No. 4 only will be browned, the Grips, Bol, Nut and Spring being first removed.

ARMOURERS' WING

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During boiling, the Bayonets should be totally submerged in the boiling water to prevent the Blades from rusting.

After browning, and before assembly, the underside and end of the Grips should be coated with red mineral jelly.

SHARPENING OF BLADES

Bayonets No. 1 and No. 3

The Blades of Bayonets will be maintained in a sharpened condition, i.e. about .01" wide at the edges. The sharpening, where necessary, will be performed with a smooth file or by grinding: it should commence at two inches from the Crosspiece and finish at the point, the existing angle of the edge being retained.

LISTS OF CHANGES

<i>Para</i>	<i>Date</i>	<i>Detail</i>
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<i>Para</i>	<i>Date</i>	<i>Detail</i>
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EME REGULATIONS

SA and MG

V 153	Page 1	Fitting of Bayonets having oversize blades (No. 4 Mk 3)
V 153	Page 3	Polishing of Bayonet Blades

ARMOURERS' WING

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EME REGULATIONS

SA and MG

V 154

Page 1

Instructions governing the disposal of Bayonets No. 5
which will not assemble to the Rifle.

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Para

Detail

SCABBARDS

General Information

The Bayonet Scabbard is designed to give protection against damage to the Bayonet and against accidental injury to the user. It also forms a means of carrying when the Bayonet is not assembled to the Rifle.

The nomenclature of the Scabbard so far as the No. is concerned follows that of the Bayonet for which it was designed. The nomenclature of the Scabbards at present in the Service is as follows:—

Scabbards Bayonet No. 1 Mk 2	for Bayonets No. 1 and No. 3.
Scabbards Bayonet No. 4 Mk 1	} for Bayonets No. 4, Mk 1, 2, 2*, 3.
2	
3	
Scabbards Bayonet No. 5 Mk 1	for Bayonets No. 5 Mk 1.

General Characteristics

Scabbard Bayonet No. 1 Mk 2

Weight	8 ozs. approx.
Length	18 ins. approx.

The Scabbard consists of the Leather, Chape, Locket (with Springs) Laces Long and Laces Short.

Scabbard Bayonet No. 4 Mk 1

Weight	4 ozs. approx.
Length	8 ¹ / ₄ ins. approx.

The Scabbard consists of Body, Mouthpiece, with Springs and Screws Mouthpiece.

The Body is a tapered steel tube, into the top of which fits the Mouthpiece secured by two screws. On the side, towards the top is sweated a boss which forms the means of attachment to the Bayonet Frog, and at the bottom a small hole is drilled for drainage purposes.

Scabbard Bayonet No. 4 Mk 2

In all respects similar to the Scabbard Bayonet No. 4 Mk 1 except that the Body is a parallel steel tube.

Scabbard Bayonet No. 4 Mk 3

Similar in all respects to the Scabbard Bayonet No. 4 Mk 2 except that the Body is a parallel plastic tube.

Scabbards Bayonet No. 5 Mk 1

Weight	5 ozs. approx.
Length	8½ ins. approx.

The Scabbard consists of a flat tapered steel Body, bored with a small hole for drainage purposes at the bottom. Into the top, a push fit into the Body are the Springs and the Mouthpiece which are secured to the Body by a Screw Mouthpiece.

On one side towards the top is sweated a boss which forms the means of attachment of the Scabbard to the Bayonet Frog.

STRIPPING AND ASSEMBLING

Scabbards Bayonet No. 1 Mk 2

It is necessary to remove the Locket and Chape only when re-blocking the Leather, or re-browning the Locket and Chape.

To remove the Locket and Chape, cut the wire Laces, pull them out and drive the Locket and Chape off.

To re-assemble these mounts, rub down the ends with glass paper to remove the old glue, then re-glue the Chape end, press the Chape on, allow to dry, insert fresh Laces (Long and Short) and clinch them on the mandril.

Assemble the Locket by the same method, using a short Lace for the purpose. Finally insert several Bayonets in the Scabbard to see that it is free from obstructions.

NOTE:—The Overall Length should be NOT LESS than 17⁵/₈ inches.

Scabbards Bayonet No. 4 Mk 1, 2 and 3

Remove the two Screws Mouthpiece and withdraw the Mouthpiece, with Springs. It is only necessary to strip the Scabbard to exchange the Springs or to remove dents from the Body.

To assemble, reverse the order of Stripping.

Scabbards Bayonet No. 5 Mk 1

As for the Scabbard Bayonet No. 4, except that there is only one Screw Mouthpiece.

EXAMINATION, TESTS AND ADJUSTMENTS

Scabbards Bayonet No. 1 Mk 2

1. Examine for condition of the Leather, fit and condition of the Locket and Chape.

Insert the Bayonet into the Scabbard as a test for efficiency of the Locket Springs, and to ascertain that the Scabbard is clear of obstructions. Examine the Locket Springs for security and signs of rust.

ARMOURERS' WING

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2. See that the Locket and Chape are either polished, browned or painted, according to the instructions in force in the Theatre concerned, and that the Leather is efficiently blacked.

3. When Locket Springs are defective, the Locket will be exchanged (factory repair).

Scabbards Bayonet No. 4 Mk 1 and 2

1. Examine for dents, security of the Mouthpiece and Screws, also the boss.

Insert the Bayonet into the Scabbard as a test of the efficiency of the Mouthpiece Springs and to ascertain that the Scabbard is free from obstructions.

2. When the Mouthpiece Springs are defective, exchange them.

Scabbards Bayonet No. 4 Mk 3

1. As for the Scabbard Bayonet No. 4 Mk 1 and 2 except that the Body will be examined for cracks, splits etc. instead of dents.

2. Bayonets may be found in the Service which have been manufactured with the Blade oversize. This defect does not adversely affect the assembly of the Bayonet to the steel types of Scabbard but difficulty may be experienced with the plastic type of Scabbard (Mk 3).

3. When it is found difficult to assemble the Bayonet to the plastic Scabbard, the Mouthpiece will be removed from the Scabbard and the Spring filed or ground at the points indicated in the sketch. The Mouthpiece will then be re-assembled to the Scabbard and the Bayonet tested for ease of assembly. If necessary this operation will be repeated until the Bayonet assembles easily to the Scabbard.

4. Before the Mouthpiece is finally assembled to the Scabbard, the portions of the Spring which have been filed will be coated with temporary black and lightly greased.

Scabbards Bayonet No. 5 Mk 1

As for the Scabbards Bayonet No. 4 Mk 1 and 2.

RE-BROWNING OF BROWNE SCABBARDS

For details of the Browning Process see separate Chapter.

In the case of the Scabbards Bayonet No. 1 Mk 2, the Locket and Chape must be removed for the purpose.

After browning, the interior of the Locket and Chape must be wiped clean and oiled to prevent the formation of rust: the oil must subsequently

be removed before the mounts are re-assembled, to enable the glue to become set, and then lightly oil the Locket Springs.

When browning Scabbards Bayonet No. 4 (all marks) they should be stripped.

After browning, lightly oil the Mouthpiece Springs.

RE-BLOCKING OF LEATHERS IN REME WORKSHOPS

Leathers of Scabbards marked "W" (Paraffin waxed) on the sewn side at about one inch from the Locket will be re-blocked as follows:—

1. Remove the mounts.
2. Place the mandril in boiling water for three minutes and then insert into the Leather.
3. Rub down the Leather with a suitable stick, and leave on the mandril until cold.
4. Rub down with glass paper, damp with gum water, applied cold (4 ozs. of Gum Arabic dissolved in one pint of hot water is sufficient for 100 Leathers): dry naturally, and finally burnish with the stick.
5. Re-assemble the mounts.
6. Apply glue to the Chape end of the Leather, place the Chape in position and leave to dry.
7. Fasten the Chape by clinching the Laces on the mandril.
8. Assemble the Locket in a similar manner.

When Leathers of Scabbards, not marked "W" require repair in REME Workshops, they will be treated as follows:—

1. Examine the stitches of the seams for condition, and if satisfactory.
2. Run shellac varnish down the seam from the inside, and allow the Leathers to stand for 2 hours.
3. Place about 20 Leathers in the cage of the container in which paraffin wax has been heated to 175 degrees F., and leave them immersed for 4 minutes: then remove and place each on a mandril, well rub down the surface of the Leather with a cloth, and leave for 5 minutes for the Leather to set. Remove from the mandril and put in a cool place for 12 hours.
4. Place on a mandril, smooth with glass paper, coat with black dye, allow to stand until the surface is almost dry, then burnish with a stick, polish with a cloth, and mark the Leather with a letter "W".
5. Re-assemble the Leathers with the Locket and Chape.

NOTE:—The Shellac Varnish should be prepared by mixing the Shellac and Methylated Spirit to a thick consistency. The Shellac takes about 30 hours to dissolve.

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BLACK FINISH OF LEATHERS

The Leathers of brown Scabbards will be blacked as follows under Armourers supervision:—

1. Sponge the surface of the Leather with boiling water, to which has been added common soda in the proportion of about $\frac{1}{2}$ oz. to the pint.
2. When dry, apply one coat of service black dye.
3. Finish with heel-ball.

REPAIR OF LOCKET TANGS OF LEATHERS, IN REME WORKSHOPS

Where the Tangs of Leathers are broken, they will be replaced by fitting, sewing and glueing new Tangs in accordance with the following instructions and sketches, using the Template (a converted Locket) for the purpose.

1. Assemble the Template to the Scabbard Leather to be repaired so that the bottom edge of the Locket rests on the seam at the back, see sketch.
2. With a sharp knife cut out the angular piece at "A" on Fig. 2 for the joint of the Tang.
3. Remove the Template, insert the Scabbard mandril, then glue the Tang, previously made, as in Fig. 4, to the Scabbard at the joint, and bind in position on the mandril, as in Fig. 3.
4. Cut away the binding and trim the joint.
5. With a suitable sewing awl and waxed linen thread, secure the tang to the Scabbard on the outside with four stitches, as in Fig. 5.

LISTS OF CHANGES

<i>Para</i>	<i>Date</i>	<i>Detail</i>
C. 3705	Apr 49	Bayt No. 9. Mk. 1. (C.R. 46 A) For Rifle No. 4. 1. Introduction. Scabbards Bayt No. 5. Mk. 1. For Bayts Nos. 5, 7 and 9. 2. Extension of use.

ARMY COUNCIL INSTRUCTIONS

<i>Para</i>	<i>Date</i>	<i>Detail</i>
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EME REGULATIONS

SA and MG

V 153 Page 1 Fitting of Bayonets (No. 2 Mk 3) having oversize Blades.

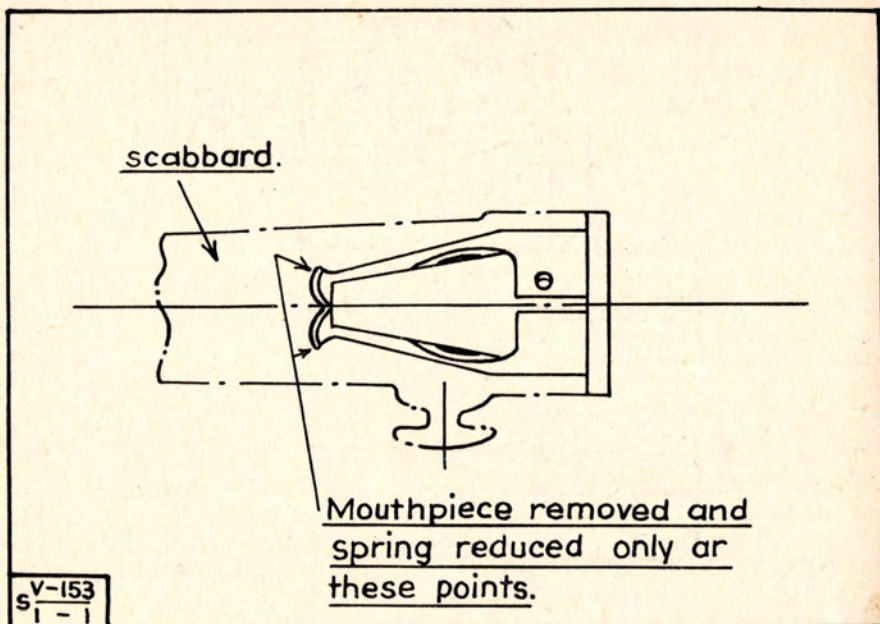
ARMOURERS' WING

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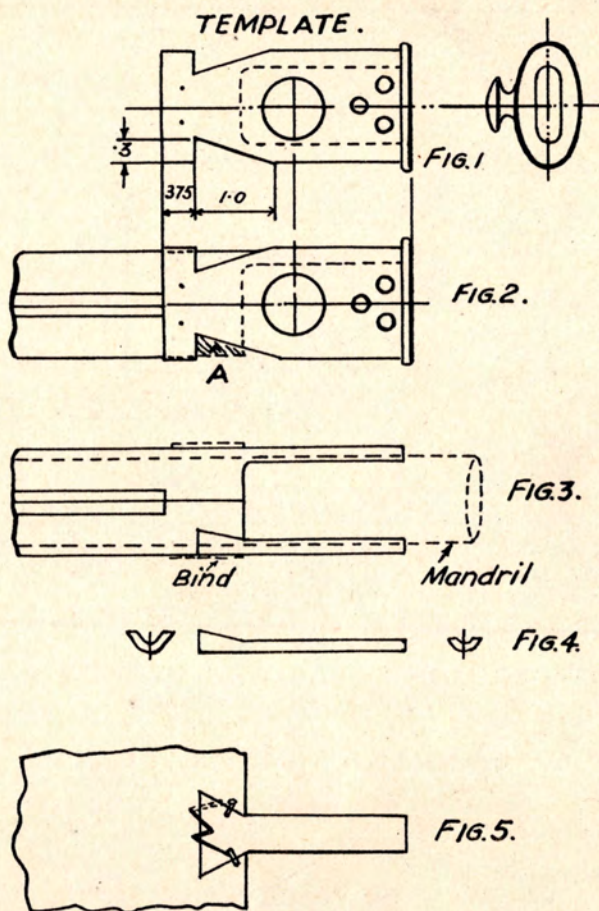
Para

Detail



FITTING OF BAYONET, HAVING OVERSIZE BLADE
TO PLASTIC SCABBARD

SCABBARD BAYONET No. 4, MARK 3



FITTING OF A NEW TANG TO THE LEATHER
SCABBARD BAYONET No. 1

GUNS MACHINE VICKERS .303-in GO

GENERAL CHARACTERISTICS

The Vickers GO gun is a weapon originally used in the RAF for both air and ground use, in JULY 45 (L of C C 1027) its use was extended to the army. There is one type of gun but the one primarily used by us is the No 4 Mk 1 or "K" Gun, as it is more commonly called. The following notes deal essentially with this type but the general action of all weapons is the same.

No 4 Mk 1	Armoured Cars
Length of gun	3 ft 4 inches
" " barrel	1 ft 8 inches
Weight of gun	20 lbs (approx)
Rifling	Concentric 5 grooves Left hand twist 1 turn in 10 inches
Dia of bore	.303 inch
Sighting	Sights AA universal
System of feed	Magazines, spring loaded drum type Capacity 60 (No. 1 Mk 1)
System of cooling	Air flow on barrel
Operation	Fully automatic Gas and return spring (No external moving parts)
Rate of fire	No 4 700 rpm

There is no "holding open" device on the gun.

STRIPPING AND ASSEMBLING

To Strip—ensure gun is unloaded.

Remove two split pins and screws and withdraw spade grip from rear of body extension. Press out top and bottom securing pins and withdraw body extension from rear of body. Withdraw return spring and rod from rear of piston. Pull back cocking handle and remove piston and breech block from body, remove breech block from piston. Extract split pin and unscrew, and remove flash eliminator. Remove bolt securing barrel strap, barrel strap, barrel and gas cylinder. Extract split pin, unscrew and remove gas plug from gas block, prise out port from gas plug with end of combination tool. Lift and pull back ejector cover, remove ejector. Extract split pin and remove cocking handle lug pin, cocking handle lug and draw cocking handle to rear as far as it will go. Lift out cocking handle complete with slide. Drive out axis pin and remove cocking handle catch with springs, from slide.

NOTE:—Cocking handle can be removed with the breech block assembled to gun.

To Assemble, reverse procedure detailed above.

To Strip Spade Grip:

Unscrew top securing screw of the side pieces and remove safety catch complete, remove safety catch, plunger, spring and plunger guide from the thumb piece. Remove bottom screw and the two side pieces.

To Strip Body Extension:

Remove axis pin and catch sear. Remove trigger axis pin and remove trigger complete with trigger rod, spring, spring sleeve and cap, sear spring and sear catch spring. Drive out trigger rod pin and remove the components from the trigger rod. Drive out pin and remove the plug from the sear buffer spring sleeve, remove sear buffer plunger and spring. Drive out axis pin and remove sear lever. Drive out axis pin and remove sear. Drive out the pin and unscrew buffer spring screw, remove buffer and spring.

To Strip Front Magazine Catch:

Extract split pin and remove catch complete with spring.

To Strip Rear Magazine Catch:

Drive out securing pin, unscrew plug and remove spring. Drive out the securing pin and remove the lever axis pin. Remove the magazine catch and lever pin.

To Assemble, reverse above detail.

POINTS TO WATCH

1. Before inserting gas plug into gas block ensure that port is flush with plug.
2. Insert end of return spring rod into the buffer when replacing the body extension.
3. When assembling the safety catch ensure the slots in it are facing towards the underside.
4. When assembling the spade grip to body extension set the safety catch to 'F'.
5. When assembling breech block ensure that feed piece axis pin does not project.
6. When replacing piston ensure that breech block is forward on its projection.
7. When replacing ejector, insert the rear end first to engage the trunnions, then push the front end inside the body.
8. Ensure that all the components are complete and split pins in position.

NOTE:—Flash eliminator must always be secured by a new split pin after stripping and assembling. If old pin is assembled to gun it may break and drop from its hole. If this happens the flash eliminator will rotate and cause the gun to swing in the direction to which the closed side of the eliminator is facing.

ACTION OF MECHANISM

FORWARD ACTION

On pressing the trigger, sear releases piston, return spring drives piston and breech block forward. As the breech block moves forward the feed piece engages the base of a cartridge in the mag. and pushes it forward. The bullet is deflected downwards (by the bullet guide on the mag.) into the chamber. The final forward movement of the breech block rams home the round, the extractor riding over and engaging the rim of the cartridge case. The piston continues its travel forward and the inclined surface on the rear projection, engaging the corresponding surface on the breech block causes the rear of the breech block to rise and engage in front of the locking shoulder. Breech block is held in front of the locking shoulder by the flat at the rear of the piston, which locks it against the force of the explosion. During the final

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movement of the piston ($\frac{3}{10}$ ") the front projection strikes the firing pin to fire the round, the piston coming to rest against the stops in the breech casing.

BACKWARD ACTION

After the bullet has passed the gas vent in the barrel a portion of the propellant gas escapes into the gas block and is deflected by the gas plug port on to the head of the piston, driving it to the rear and compressing the return spring. The piston moves about $\frac{3}{10}$ " before the inclined surface on the front projection engages the corresponding surface on the breech block to lower and disengage it from the locking shoulder in the body. Whilst this movement is taking place the bullet leaves the barrel and the firing pin is withdrawn into the breech block by its spring. The breech block is now carried to the rear by the piston and, as the breech block moves away from the barrel, the extractor extracts the empty cartridge case from the chamber. The cam on the left hand side of the breech block causes the ejector to rotate sharply and engage the base of the empty cartridge case which is ejected through the ejection opening, into the deflector bag. As the feed piece passes under the next round in the mag. it is deflected downwards, being returned into position by its spring, ready to engage the base of the cartridge when the breech block moves forward. The backward movement is arrested when the piston strikes buffer in the body extension. The piston rebounds and if the trigger is kept pressed the cycle of operations is repeated until the last round has been fired. After firing the last round the breech block closes on an empty chamber. There is NO 'holding open device' incorporated in the mechanism of this weapon.

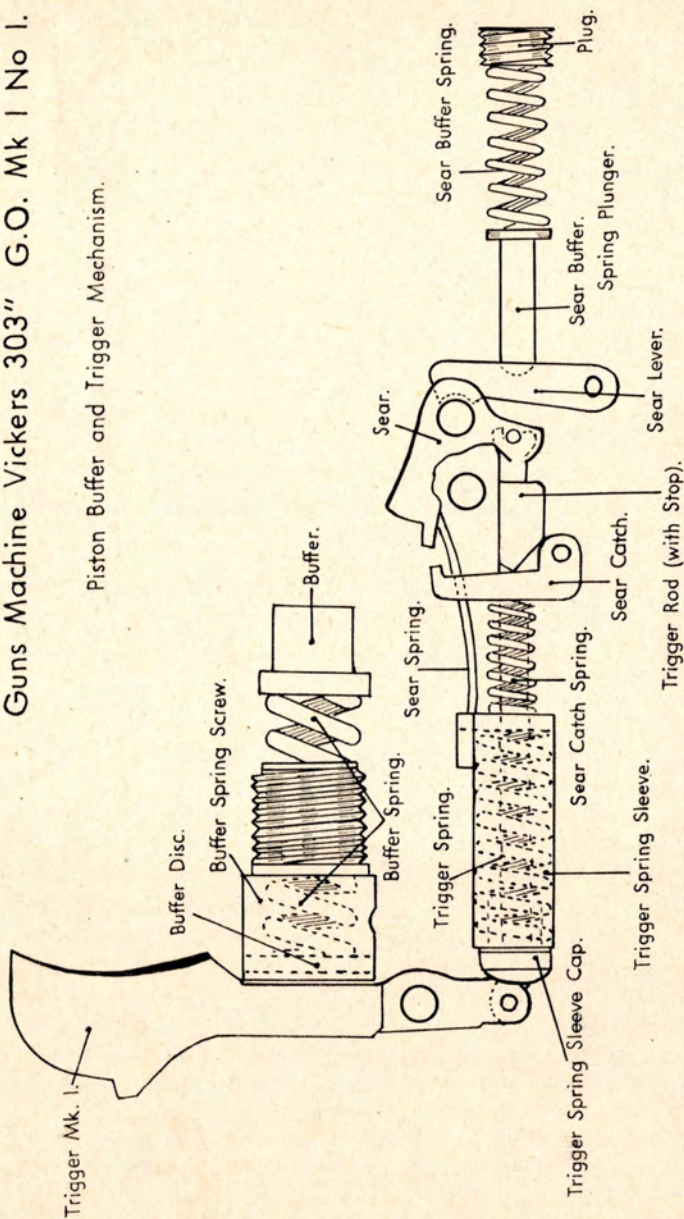
ACTION OF THE TRIGGER MECHANISM

On the trigger being rotated, its lower end pushes forward the trigger rod which engages the sear. The sear is caused to rotate until the bent is drawn below the level of the projection on the body extension and clear of the piston bent. The movement of the trigger rod compresses the trigger spring and also allows the sear catch spring to react. The latter spring bearing against the sear catch causes this to rotate and engage the lug on the rear of sear and retain it against the pressure of the sear spring.

The trigger is returned to its normal position, by its spring and draws back the trigger rod when the trigger is released. The sear, however, does not rise immediately as it is retained by the sear catch. As the trigger rod nears its normal position a stop on its inner end bears against the sear catch and disengages this from the sear, which rises under the influence of its springs. When the piston rebounds off the buffer the bent strikes the sear and drives it forward. The sear on moving forward is forced up into full engagement

Guns Machine Vickers 303" G.O. Mk I No I.

Piston Buffer and Trigger Mechanism.



with bent of piston by action of sear cam pin in body extension bearing on its underside. The sear bearing against the sear lever causes this to swing forward against the plunger and compress the sear buffer spring, which absorbs the shock of engagement and then, reasserting itself, returns the sear, piston and breech block to the normal cocked position.

Owing to the very high rate of fire of this gun all mechanical operations are practically instantaneous, the time interval between explosions being about $\frac{1}{16}$ sec.

MECHANICAL SAFETY

Backward movement

The distance travelled by the piston ($\frac{3}{10}$ "') before the action is unlocked, sufficient time for bullet to leave barrel.

Forward movement

1. Distance travelled by piston after locking of action.
2. Breech block not raised, piston jams.
3. Firing pin retained by spring within breech block.

APPLIED SAFETY

When the safety catch is in action the thumbpiece shows at "SAFE", the front of the safety catch is against the trigger, being retained by action of spring and plunger, preventing the trigger from being drawn to the rear. On pushing up the thumbpiece to "FIRE" it is rotated, bringing down the projection, lowering the plunger and compressing the spring. When the plunger gets below horizontal the spring re-asserts itself, further rotating the thumbpiece pushing down the projection. The guide rotates in the safety catch which being pivotted on thumbpiece rises clear of trigger.

EXAMINATION

Barrel

Soak in oil 'A' for ten minutes, dry and clean, inspect for chemical corrosion and metallic fouling, the .303" gauge should run through. View for fractures, burrs, bulges. Gauge bullet lead. Barrels with a lead wear of between $1\frac{1}{2}$ to 4 inches should be tested frequently for B.S.O.'s. Test for security of sight brackets, gas block, and gas plug post. Watch for burrs on spigot of block and fouling in plug.

ARMOURERS' WING

Précis No. SA/23

Body

Test security of top and bottom piston stops. Examine for cracks in front of locking shoulder, security of locking shoulder and deflection brackets. Gauge body extension securing pins.

Gas Cylinder

View for straightness. Remove any burrs. Test freedom of piston rod. Test front end of cylinder for fit of gas block. Remove any fouling by soaking in oil 'A' for ten minutes, then clean with rod and brush.

Barrel Strap

Gauge diameter. Examine for burrs. When assembled, there should be no longitudinal movement of barrel in body.

Ejector

Gauge trunnions. Test axis holes with new ejector. Examine for fractures and security of cover rivets.

Cocking Handle

Examine for fractures, burrs, efficiency of catch and freedom of movement.

Breech Block

Examine for cracks at rear end of piston recess, damage to firing pin hole. Firing pin for straightness, fractures or score marks. Test length of firing pin spring. Exchange extractor after 8000 rounds irrespective of condition.

Piston Rod

Gauge piston head. Examine for fractures, burrs and wear on bent.

Return Spring

Test for free length. Examine for fractures. Remove feather edge from end coils, if necessary. Estimated life of spring is 30,000 rounds.

Trigger Mechanism

Ensure sear axis pin is at the rear of its slot. Test buffer action of sear, free length of springs. Operate trigger, sear should be drawn below the surface of body extension. Test for engagement of sear catch. Release trigger slowly, sear should not rise until trigger is almost against its stop. Release trigger sharply, trigger and sear should return to normal positions. Test functioning of safety catch.

Test C.H.S.

Assemble the barrel, barrel strap, and gas cylinder to the gun. Withdraw mechanism and insert the .064" gauge on the cartridge face of breech block. Release the mechanism slowly and ensure that the gauge enters the chamber and that the breech is locked. When the .064" gauge is inserted the mechanism should be easily withdrawn. Now repeat this procedure with the .074" gauge. If, when the mechanism is released, the mechanism is tightly locked, or if the breech block fails to reach the locking shoulder, the C.H.S. is between .064" and .074". If, when the .074" gauge is inserted, the breech block reaches the locking shoulder and the locking mechanism can easily be withdrawn, the C.H.S. is excessive. To adjust C.H.S. change the barrel strap and repeat test. If still excessive re-test with new breech block, then if necessary with new strap and breech block. Finally try new barrel, if still excessive return to w/s.

Firing Pin Protrusion

Assemble the gun with the exception of extractor, extractor spring, barrel, barrel strap and gas cylinder. Ensure that breech block is properly locked and place the gun in a vertical position with the butt resting on the bench. Insert the firing pin protrusion gauge into the barrel hole in the body. Assemble the barrel strap and bolt, which must be those in use on the gun. Screw up the knurled nut on the gauge a sufficient amount to take up any backlash.

The protrusion is correct if the end of the gauge plunger is between the two gauging faces of the end of the gauge body. If insufficient, change firing pin and re-gauge. If still insufficient, change the barrel strap. If excessive, rub down, with oil stone, maintaining radius.

NOTE: The protrusion of the firing pin is linked with the C.H.S. through the medium of the barrel strap.

FITTING OF NEW COMPONENTS

If a new buffer screw cap is fitted ensure correct positioning by screwing in a distance of 2.46 ins. measured from the front end of buffer spring housing to the end of cap. Drill through the hole in the body extension for the securing pin.

When a new extractor or spring is fitted, a round must be fed by hand on to the face of the new breech block behind the extractor claw to ensure that the rim of the round will snap into position. If it does not, or the rim is unduly tight, the overall length of the spring must be reduced by filing a small amount off the radii at the rear end of extractor spring. Usually .005" to .01" is sufficient.

ARMOURERS' WING

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FIRING TEST

1. Test for speed

Load magazine with 25 rounds. Fire in one burst. Time taken to empty mag. should be between 1.5 and 2 secs. **NOTE:** Whilst firing, traverse gun to prevent tunnelling.

2. Test for functioning

Load mag. with 25 rounds. Fire in short bursts, stopping gun at least four times by releasing the trigger sharply. Ensure that gun does not 'run-away' after trigger is released. Load with ten rounds. Fire into an elevated box. Load with ten rounds. Fire into a depressed box.

3. Test for accuracy

Load mag. with 89 rounds then 1 drill cartridge then a further 10 rounds. Fit the gun to a fixed mounting without elevation, depression, or traverse, and fire ten shots at the target. If the test is fired on the 25 yards range, the ten shots should be grouped within a rectangle 4 ins. square, and the mean point of impact of the group should be not more than 2 ins. to the left, 2 ins. to the right, 1½ ins. above or 2½ ins. below the centre line of the bore of the gun.

If the test is fired on the 100 yards range, 9 of the shots should be grouped within a rectangle 15 ins. square, and the MPI of the group should not be more than 6½ ins. left, 6½ ins. to the right, 5½ ins. above, or 7½ ins. below the centre line of the bore of the gun.

NOTE: Should the gun fail during any of the firing tests it must be cleaned and further examined for undue wear on frictional surfaces, particular attention being given to any new parts that have been fitted.

NOTE: Should the speed of the gun be sluggish, examine the buffer spring and return spring for strength and fractures. Test for wear on piston head and piston guide.

TO UNLOAD THE MAGAZINE

Remove the tension from the mainspring. Release the moveable lip. Rotate the top plate when the rounds will fall out.

TO LOAD THE GUN

Cock the gun and put the safety catch to safe. Place magazine on the gun, rear catch plate under rear magazine catch first, pressing down front catch plate to engage front magazine catch second.

TO UNLOAD THE GUN

Place the palm of the hand against the rear magazine catch lever and grasp the handle with the fingers of the same hand. Remove as for BREN. If the breech block is in the forward position, cock the gun and press the trigger. If the breech block is in the rear position, press the trigger, cock the gun and again press the trigger.

GAUGES

C.H.S.	.064", .074". (No. 1)
F.P.P.	T.B. 115735
Body extension securing pins	.314" reject
Gas cylinder	.793" go .794 not go
Barrel strap hole	.315" plug accept .3175" plug reject
Ejector trunnions	Less than .231" ejector u/s.
Gas block boss	.785" reject
Piston rod head	.745" reject
Mounting yoke hole	.315" accept .3175" reject
Barrel strap and mounting bolt	.313" reject

GAUGES—MAGAZINE

Cartridge rim guide	.54" dummy	.525" dummy
Profile gauge (bottom plate)	T.A. 106912	
Band concentricity gauge	T.A. 103784	
Body concentricity gauge	T.A. 110902, clearance uniform and not more than .01".	

SPRINGS

	<i>Min free length</i>	<i>Load</i>	<i>Min length under Load</i>
Return springs:—			
Outer return spring	13 inches	7 lbs	5.5 inches
Inner return spring	19 "	22 "	11.5 "
Mk 2 return spring	12 "	28 "	5.1 "
Sear buffer spring	1.2 "	145 " <u>+ 5</u> lbs	1.01 "
Sear catch spring	1.25 "	3 "	.75 "
Trigger spring	1.45 "	22 "	.8-.85 "
Piston buffer spring	1.75 "	780 "	1.48 "
Firing pin spring (old patt)	.66 "		
Firing pin spring (new patt)	.7 "		

STOPPAGES

The position of the rear end of the piston, as viewed through the cocking handle slot, or the position of the cocking handle when drawn to the rear to engage the piston, will indicate the action that must be taken to clear a peculiar stoppage.

NOTE:—The cocking handle must be drawn back carefully to feel the position of the piston.

FIRST POSITION

Rear end of piston below the rear magazine catch lever. Cocking handle fully forward.

SECOND POSITION

Rear end of piston to the rear of the rear magazine catch lever. Cocking handle to the front of the rear magazine catch lever.

THIRD POSITION

Rear end of piston not visible. Cocking handle below or to the rear of the rear magazine catch lever.

STOPPAGES

ARMOURERS' WING

Précis No. SA/23

POSITION	I.A.	RESULT	CAUSE	REMEDY
FIRST	Cock the gun. Fire and watch the top plate of the magazine.	(1) Gun fires.	(1) Misfires due to defective ammunition.	NIL.
		(2) Gun fires but repeats stoppages.	(2) No feed due to:— (1) Sluggish magazine. (2) Incomplete backward movement due to (a) Friction dirt or chips, (b) Fouling in the gas plug port. (Note (2) (a) May also give a second position stoppage.	(2) (1) Change magazine, continue firing. (2) (a) Cock the gun sharply and fire. If stoppage is repeated, remove magazine, clear gun, wipe away any brass chips which are visible and oil the piston rod through the feed way in the body. Replace the magazine and continue firing. (b) Correct maintenance of gun.
		(3) (i) Top plate rotates but gun does not fire. (ii) Stoppage is repeated after changing the breech block.	(3) (i) Defective firing pin or fouling in the firing pin hole in the breech block. (ii) (a) Weak force of blow due to a weak return spring or sluggish motion. (b) Insufficient protrusion of firing pin.	(3) (i) Remove the magazine. Clear the gun. Change the breech block. Replace the magazine and continue. (ii) (a) Correct maintenance of gun. (b) Correct gauging and adjustment of firing pin protrusion.

STOPPAGES (contd.)

POSITION	I.A.	RESULT	CAUSE	REMEDY
		(4) Top plate does not rotate and gun does not fire.	(4) No feed due to:— (i) Empty magazine. (ii) Defective or dirty magazine.	(4) (i) Change magazine. (ii) Change magazine. Correct maintenance of magazine.
		(5) Stoppage repeated after changing magazine in (4).	(5) Defective feed piece or feed piece spring.	(5) Remove magazine. Change breech block. Replace magazine. Continue firing.
		A. Gun fires. B. (1) Gun fires. B. (2) Gun repeats stoppage.	A. Defective magazine. B. Full deflector bag. (2) Separated case.	A. Correct maintenance of magazine. B. (1) B. (2) Remove magazine. Clear gun, using clearing plug to remove separated case from the chamber. Replace magazine and continue firing.
SECOND	Cock gun, remove magazine. A. If a round is jammed in the lips, change magazine. Continue firing. B. If round is correct in lips, clear gun, empty deflector bag, replace magazine, continue firing.			
THIRD	Cock the gun. Remove the magazine.			
	A. If there is no round in the body of chamber, change the magazine and continue firing.	A. Gun fires.	A. Defective magazine.	A. Correct maintenance of magazine.

STOPPAGES (contd.)

POSITION	I.A.	RESULT	CAUSE	REMEDY
B. If live round only is in body, clear gun. See that round is correctly positioned in magazine lips. Replace magazine and continue firing.	B. Gun fires.	B. Point of bullet misses chamber usually because the first round was out of place in the lips before the magazine was put on the gun.	B. Care in stowage and during transport,	
C. If empty case is on face of breech block, clear gun. Change ejector. Replace magazine and continue firing.	C. Gun fires.	C. Defective ejector.	C.	
D. If empty case is in chamber, clear gun. Replace magazine and continue firing.	D. (i) Gun fires but repeats stoppage. (ii) Gun fires after changing the breech block, but repeats the stoppage.	D. (i) Defective extractor or extractor spring. (ii) (a) Dirty chamber. (b) Defective or dirty ammunition.	D. (i) Remove the magazine. Clear the chamber. Change the breech block. Replace the magazine and continue firing. (ii) (a) Correct maintenance of gun. (b) Ensure that ammunition is clean when loading magazine.	

NOTE:—If the gun develops too high a rate of fire, it may cause certain of the stoppages, due to the breech block racing the magazine. The remedy of this is to keep the small gas escape hole in the gas plug clean.

LIST OF CHANGES

C 1027	July 45	Gun M/C Vickers .303" GO	
		No. 1 Mk 1	
		No. 2 Mk 1	Extension of use
		No. 3 Mk 1	
		Magazines .303" GO No. 2 Mk 1	

CARBINES MACHINE STEN 9 mm

The Sten is a simple machine carbine designed for ease and speed of manufacture. Though designed for cheapness it is accurate and reliable, giving few stoppages or breakages. Over 10,000 rounds have been fired from one carbine without fracture of any component and without using oil, a distinct advantage in desert or dry sandy country. It fires all types of 9 mm Parabellum ammunition including German and Italian.

There are five marks in use;

Mks 1, 1*, 2, 2s, 3, 5, and 6.

1 and 1* Obsolete (L of C C 3590/48)

Weight of Carbine Mk 1.

7 lbs 14 ozs approx.

" " " Mk 1*.

7 lbs 8 ozs approx.

" " " Mk 2.

6 lbs 12 ozs approx.

" " " Mk 2s.

7 lbs 8 ozs approx.

" " " Mk 3.

7 lbs 4 ozs approx.

" " " Mk 5.

8 lbs approx.

" " " Mk 6.

Length of Carbine Mks 1, 2, 3, 5.

2 ft 6 ins approx.

" " " Mk 2s.

3 ft 1 in.

" " " Mk 6.

Diameter of bore

8.81 mm—8.89 mm. (8.89 mm = .350",
8.81 mm = .3469").

Rifling

6 grooves R.H. 1 in 250 mm.

Concentric.

Operation

Blowback. Single and Auto.

Rates of Fire Mks 1, 2, 3, 5.

525 r.p.m.

Mk 2s.

\ Recommended single

Mk 6.

/ shots only.

Chamber Pressure

7.5 tons per square inch.

Sighting

Fixed. for use up to 200 yds.

Aperture backsight. Inverted "V"
(Barleycorn) foresight (Mk 3—Blade)

Mk 2 3 sizes (One change gives 3"
at 100 ft) .53" .56" .59".

Mk 5 8 sizes as for Rifle No. 4. Plus
.100, .115, .130.

ARMOURERS' WING

Précis No. SA/24

Feeding

Box Magazine holding 32 rds.

Mk 1 Inspection holes, for Stens
Mks 1, 1*. 2, 2s, 3. Obsolescent.

Mk 2 No inspection holes for all
Mks of Sten.

(Magazine common to Lanchester
carbine.)

M.V. (other than Mks 2s and 6) 1250 f.p.s. (1943 Ammunition).

M.V. Mk 2s.

M.V. Mk 6.

DIFFERENCE IN MARKS

- Mk 1. Barrel not removable. Protector F/S and F/S on front end of Tubes Casing. Flash Eliminator, Hand Guard and Grip fitted. No Hand Protector. Cocking Handle Safety Slot below slot for movement of Cocking Handle during functioning.
- Mk 1*. Similar to Mk 1 but has no Flash Eliminator, Fore-grip or Hand Guard.
- Mk 2. Removable Barrel retained by catch on Magazine Housing. Barrel Projects $3\frac{1}{2}$ " beyond Nuts Barrel. Blade F/S welded to front end of Tubes Casing. Magazine Housing rotates to form Cover Ejection Opening. No Flash Eliminator, Hand Guard or Grip. Cocking Handle Safety Slot above instead of below slot for movement of Cocking Handle during functioning.
- Mk 3. Similar to Mk 1, but no F/S Protector, Flash Eliminator, Hand Guard or Grip. Hand Protector fitted to R.H. side in front of Ejection Opening. Cocking Handle Safety Slot above instead of below slot for movement of Cocking Handle during functioning.
- Mk 5. Similar to Mk 2. Barrel at muzzle end same as Rifle No. 4. Butt is of wood fitted with Rifle No. 4 Butt Plate, and Pistol Grip and Foregrip of wood are fitted. Front of trigger guard is bowed instead of square. (Use of Fore Grip discontinued).
- Mk 2s. Same as Mk 2, but shorter barrel fitted with Silencing Unit. Breech Block is lightened and Recoil Spring is one inch shorter, i.e., $8\frac{1}{2}$ " to counteract loss of recoil caused by shorter barrel.
- Mk 6.

STRIPPING

Ensure weapon is unloaded.

Press in housing spring return and slide off butt. Press in caps spring return, rotate approx. 15°—20° in an anti-clockwise direction. Remove spring return, cap and housing. Draw the Block Breech to the rear until the cocking handle is opposite the locking recess, withdraw cocking handle and slide Block Breech to the rear.

Remove cover trigger mechanism by prising away with screwdriver (Where screws are fitted these must be removed first). Unhook and remove spring trigger, remove pawl lever tripping, pin trigger and pin sear, sear, lever tripping and trigger.

To remove lever change, remove split pin and push lever through. Remove screw catch magazine retainer, retainer spring and catch. Remove Ejector (Mk 1 and 3 Sten). Drive out pin extractor and remove extractor and spring from block breech. (Firing pin is integral.)

Remove split pin, remove catch nut barrel, plunger and spring magazine housing.

ASSEMBLING

Reverse of stripping.

Ensure when assembling Mk 2 Stens that cut on barrel is at "12 o'clock".

ACTION OF MECHANISM**Backward Action**

Change Lever at
"Repetition"

The Breech Block is driven to rear by base pressure on cartridge case, carrying cartridge case with it. As it passes the ejector the empty case is forced off the face of the Breech Block and ejected through R.H. side of Tubes Casing. The Breech Block continues rearwards until Return Spring is fully compressed when it drives the Breech Block forward again. Bent of Breech Block engages nose of sear thus cocking the action.

Forward Action

Change Lever at
"Repetition"

Assuming the carbine to be cocked. Pressure on trigger forces lever tripping forward extending spring trigger the tripping lever bent engaging bent of sear thus rotating sear downwards out of engagement with Breech Block. Breech Block flies forward under influence of compressed Return Spring, bent depresses Lever Tripping, disengaging bent of Lever Tripping and sear, allowing sear to rise under influence of Spring Trigger ready to engage bent of Breech Block after recoil has taken place. Feed Ribs on Breech Block drive round out of Magazine, into Chamber. Breech Block meets stops on Barrel and Cap is fired.

ARMOURERS' WING

Précis No. SA/24

Trigger Mechanism

Repetition

Change Lever pushed in from left i.e., for repetition. Tripping Lever is pushed across to right so that it is in the path of the bent of Breech Block. Carbine cocked, Trigger pressed, Lever Tripping forced forward extending Spring Trigger, bent of Tripping Lever meets bent of lower arm of Sear, rotating Sear down out of engagement with bent of Breech Block. Breech Block flies forward under influence of compressed Return Spring, bent of Breech Block strikes and depresses Tripping Lever thereby disengaging it from Sear, allowing Sear to rise under influence of Trigger Spring. On backward movement, bent of Breech Block rides over Sear which engages bent of Breech Block after recoil has been completed. To continue firing, the Trigger must be pressed again thus continuing the cycle of operations.

Trigger Mechanism

Automatic

With Change Lever pushed in from right, i.e., for Automatic fire. The Tripping Lever is pushed across to the left in line with the flat surface of Breech Block, and cannot engage bent of Breech Block. Carbine cocked, Trigger pressed, Lever Tripping forced forward extending Spring Trigger, bent of Tripping Lever meets lower bent of Sear rotating Sear down out of engagement with bent of Breech Block. Breech Block flies forward under influence of compressed Return Spring. Until pressure of Trigger is released, Carbine will continue to fire until magazine is empty.

SAFETY ACTION

MECHANICAL

No positive locking action, safety is achieved by use of a heavy Breech Block which resists the initial force of explosion before being driven to rear. It is assisted by the fact that the Cartridge Case is parallel and therefore the Breech is not completely unsealed until Cartridge Case is clear of Chamber.

SAFETY ACTION

APPLIED

Cocked Position

Applied safety is obtained by withdrawing recoiling portions and rotating cocking handle into slot in casing. Breech Block is recessed to permit free rotation without fouling Tripping Lever. On Mk 1 and Mk 1* Carbines, slot is below, all subsequent Mk's above, cocking handle slot in casing.

Fired Position

Projection on Cocking Handle Mk 5 is pushed through hole bored on left of Casing. Collar of Return Spring forms bearing against Cocking Handle and retains it.

TESTS, ADJUSTMENTS AND GAUGING

The Bore

With the Barrel held at an angle of 60 degrees, the Plug Gauge .345 (6" long) should run.

Firing Pin Protrusion

.045" Low and .050" High gauged from the bottom of the Cartridge Recess.

Firing Pin Height in Relation to the Front Face of the Breech Block

.035" Low and .028" High.

Depth of the Cartridge Recess

.078"—.080".

Spring Return (Carbines Mks 2s and 6)

Should have 15½ coils. Free Length 9½". Weight:—Fired Position 7-9 lbs.
Cocked „ 14-16 „

Under NO circumstances will the Return Spring be shortened by removing coils. Where a Spring is found to be excessively long, it will be shortened by clamping down in the following manner:—

Pull back the Cocking Handle to its limit: in front of the Breech Block and in to the Cocking Handle slot of the Breech Casing, insert the portion of the Butt which receives the Housing Spring Return: leave in this position up to 24 hours, the period being governed by the amount of shortening required.

Spring Return (Carbines Mk 2s and 6)

The detail as for the Spring Return for Carbines Mks 1, 1*, 2, 3 and 5 equally applies to this Spring except that the length of the Spring when free is 8½" plus or minus 1/10" and the number of coils is 14½.

Spring Extractor

Weight 3 lbs to 3½ lbs. Those of early manufacture weight between 4 and 4½ lbs.

ARMOURERS' WING

Précis No. SA/24

Magazine

The Angle of Presentation of the Round should be 8 degrees. If this is not so and Magazine is faulty, exchange Magazine.

Trigger Mechanism Casing

The distance between the sides of the Casing should be between .63" and .635".

Ball Detent of Lever Change

The Ball should protrude 75% of its diameter. The protrusion can be adjusted by ring punching the hole.

Accuracy Test

Range 100 feet. Target a 6" square with a central Aiming Point 1" above the bottom of the square. 4 out of 5 single shots must strike the square.

Sights

The Mk 1 Carbine has a fixed non-adjustable Foresight.

The Mk 2 Carbine has three heights issued:—.53", .56" and .59".

Sight Radius 11.75".

One height of Foresight gives a variation on the Target of 3" at 100 feet.

The Mk 3 Carbine has a fixed non-adjustable Foresight.

The Mk 5 Carbine has eleven heights of Foresight issued:—.03" to .130" in increments of .015" (the same as for the Rifle No. 4). Sight Radius 16.5"

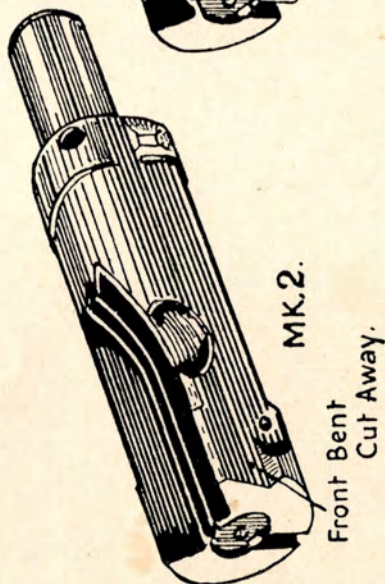
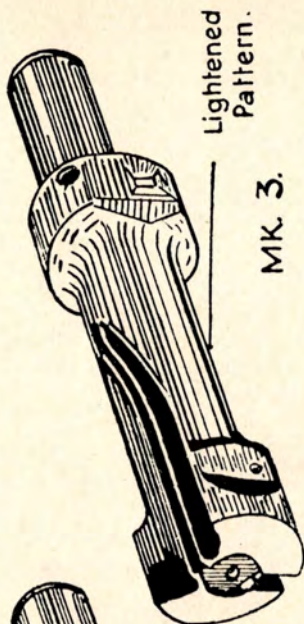
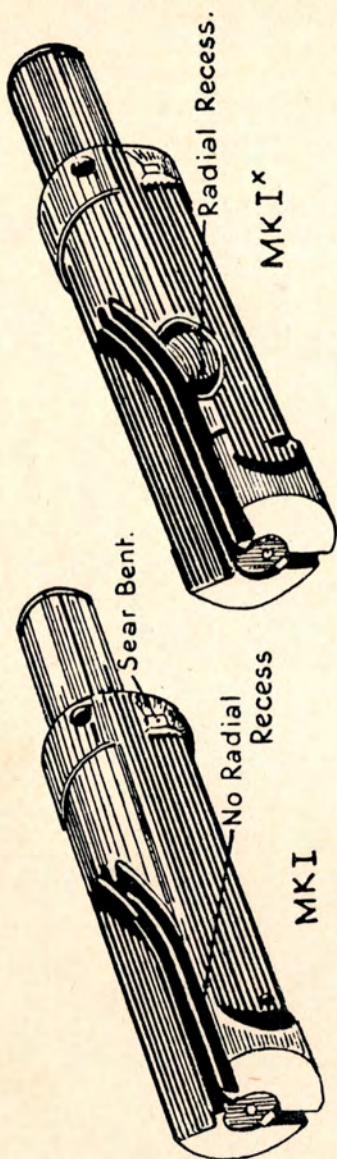
Variation at 100' with one change of sight and 1.09" per foresight.

The Mk 6 Carbine.

BREECH BLOCKS

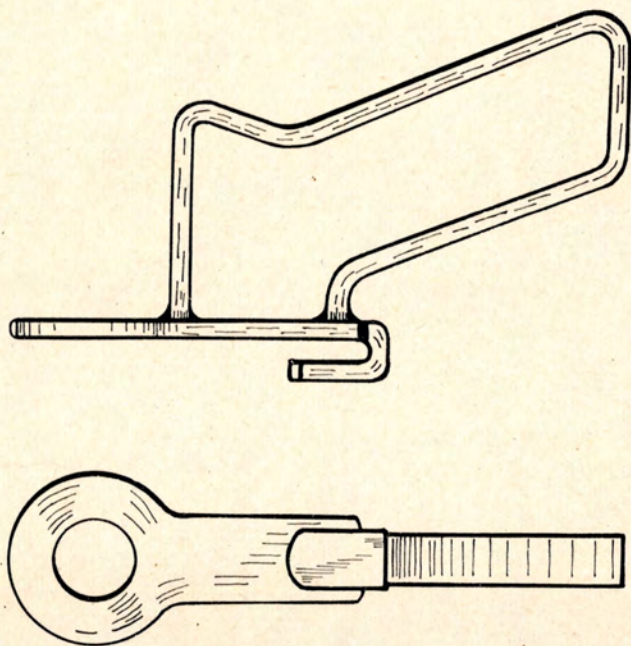
CARBINE

Mk. 1	No radial recess.	For Mk. 1 and 1*
Mk. 1*	Radial recess to clear front end of Tripping Lever when rotating Cocking Handle into Safety slot.	For Mk. 1, 1*, 2 and 3
Mk. 2	Radial recess. Front bent cut away to clear Tripping Lever due to the Mechanism being further forward.	For Mk. 5
Mk. 3	Lightened pattern.	For Mk. 2s



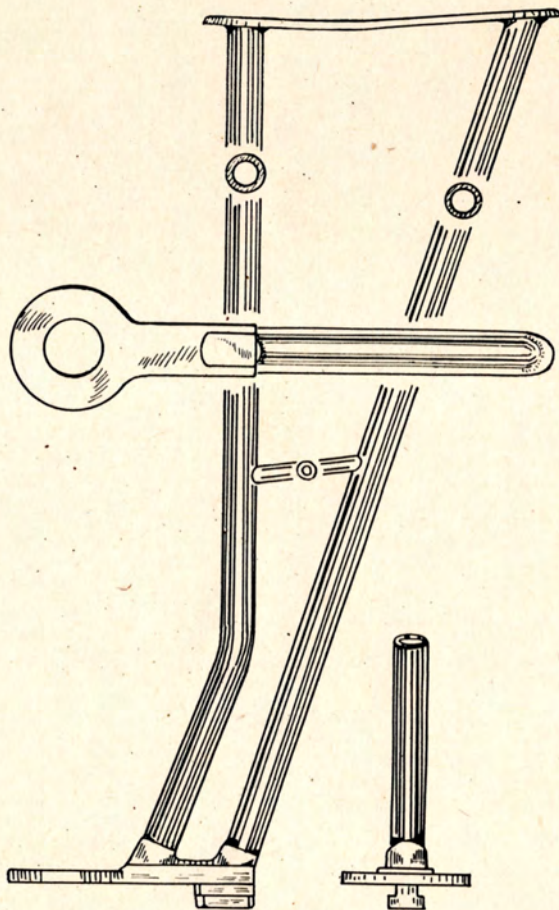
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GRIPS PISTOL STEN 9_{MM}



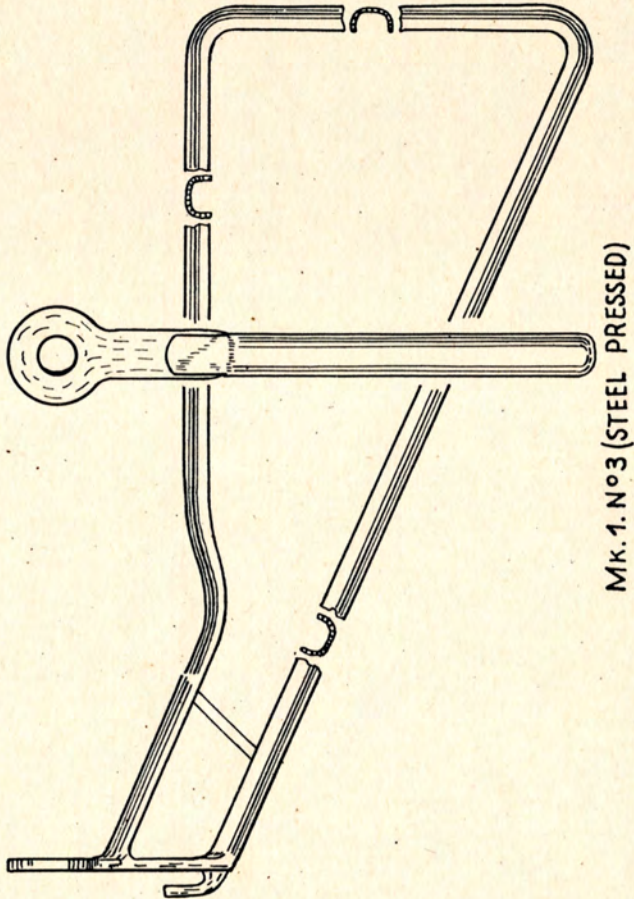
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FOR AIRBORNE TROOPS

CARBINES M/C STEN 9_{MM}
TYPES OF BUTT

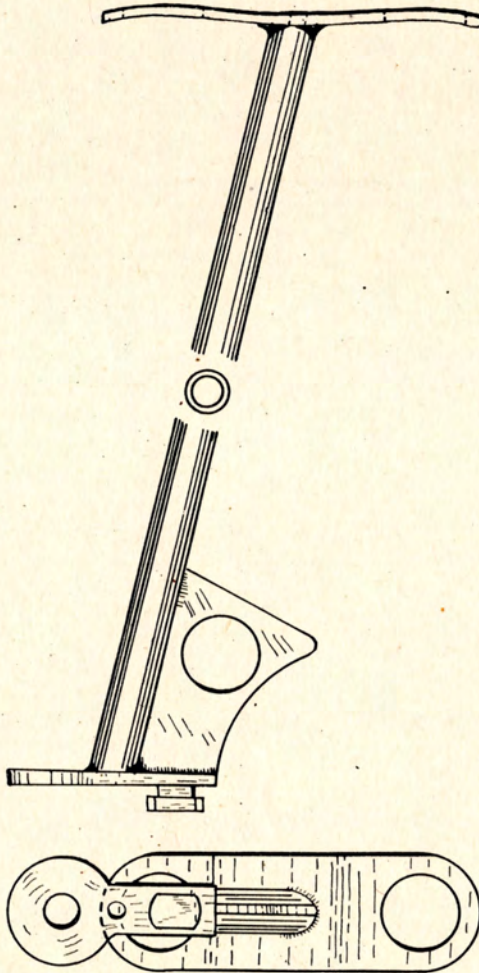


Mk.1. No.2 (STEEL TUBULAR)

CARBINES M/G STEN 9_{MM}
TYPES OF BUTT

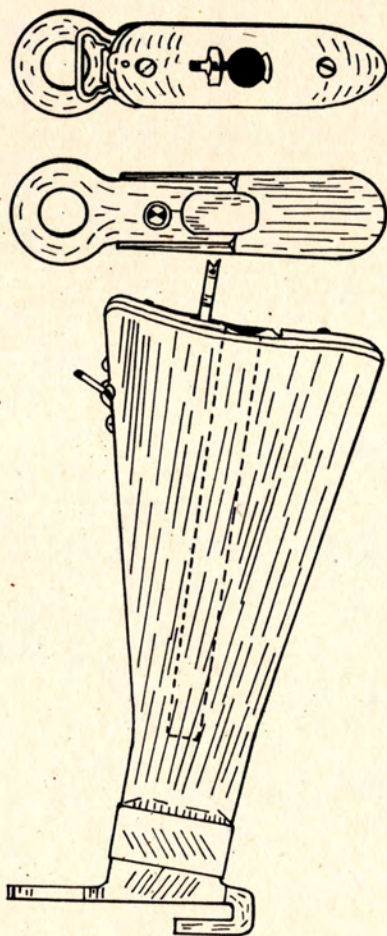


CARBINES M/C STEN 9_{MM}
TYPES OF BUTT



Mk.2. (STEEL TUBULAR)

CARBINES M/C STEN 9MM
TYPES OF BUTT



Mk.3. (wood)

STEN

Notes on Faults, Causes, Action to be taken

EXAMINATION OF WEAPON. DEFECTS THAT MAY BE FOUND

Fault	Condition	Action
Catch Nut Barrel	Nut Barrel rotates against teeth	See EMER E704 p4 See EMER D934 Mod. No. 2 Elongate Slot in Magazine Housing Clear shoulders of catch for free movement Damaged teeth. Fit spare catch
Barrel	Burred at Muzzle Damaged Barrel Bearing (Tight in Seating) Damaged Collar (Rocking in Seating) Chamber dirty, rusty or burred	Remove burr Chamfer to remove burr Remove dirt or burrs Clean chamber and remove burrs round shoulder
Barrel Mk 3	Loose Barrel	Ring Punch. EMER D934 Mod. No. 1, E704 p1
Nut Barrel	Fractured Damaged thread Worn or damaged Knurling	Replace Clean and trim where practicable Replace
Housing Magazine	Loose on Casing Oversize Mouthpiece (Magazine Loose) Lips of Magazine fouling Breech Block	Adjust diameter by squeezing See Modification (a) Test with other Magazines to determine if Weapon or Mag is at fault (b) Build up with weld, edges or Housing at point of contact with Magazine Stop and adjust until Catch engages and Horns of Breech Block clear lips of Magazine Check whether due to plunger hole or cocking slot being out of position radially allowing it to foul one side
Catch Magazine	Sticking or worn catch Stripped Thread	(a) Set Retainer Catch Magazine (b) If worn replace Catch Copper Rivet (ACI 1848/43)

ARMOURERS' WING

Précis No. SA/24

Fault	Condition	Action
Casing with Permanent Fittings	Ejector Broken Cocking Handle Slot Distorted Damaged or bent casing Stripped Threads (Screws Cover Trigger Mechanism) Loose Lever change	Casing Unserviceable Set to Mandrel with Raw-hide Mallet (if unrepairable sentence u/s As above Screw BA RD HD No. 2 x 1 1/4" Ring Punch .5" hole and Ream to size
Butt	Loose Tight	Adjust width or slot at corners of Head Casing Rear Remove metal from Casing. EMER E703 p. f.
All Welds	Broken or fractured	Re-weld where practicable
Breech Block	Damaged or worn Bent Damaged Feed Horns Dirty Cartridge Recess Sticky Extractor Loose Pin Extractor	(a) Back off Bent at Rear (b) Relieve face in front of Bent Where damaged Dress Up Clean Cartridge Recess (a) Remove extractor and clean Remove burrs, check Spring (b) Dress up slot if damaged Set Pin, or Centre Punch
Extractor	Worn or broken	Fit new Extractor
Trigger Mechanism	Pin Pawl Lever Tripping Broken or bent Sear stop face broken or damaged Spring Trigger broken (Eyelets) Broken hook on Trigger Ball detent Lever Change deficient	(a) Fit new pin and secure (b) Re-set Pin Exchange (a) Fit new spring (b) In emergency bend up end 2 coils Trigger U/S Replace Lever Change U/S Replace

DEFECTS THAT MAY BE FOUND ON FUNCTIONING

Fault	Possible Cause	Point for Examination	Action to be taken
1. Fires 2 or more Rounds when set at Repetition			
(i) Short Recoil Breech Block does not recoil far enough to engage Sear	(a) Ammunition	Make and Date of S.A.A. used	Test with British Amn. bearing later than 1/3/43 and marked on box label V. 1250
	(b) Dirty or rusty Chamber	Chamber	Clean Chamber
	(a) Burr or fouling at shoulder of Chamber preventing cartridge from going fully home	Chamber	Remove burr or fouling
(ii) Heavy Recoil	(d) Heavy return Spring	Length of Return Spring	Cramp Spring for necessary period
	Weak Return Spring (Sear still depressed)	Return Spring	Change Return Spring If no Spring available, stretch about 9½—10" free length Mk 2s—free length 8½"
(iii) Trigger Mechanism Defective	(a) Change Lever, Detent fails to remain engaged	Change Lever	Adjust location of Detent by (a) Ring Punch .5" hole and ream to size (b) Set in side plates
	(b) Bent of Lever Tripping is not disengaged from Sear	Heigh of toe of Lever Tripping and Bent of Breech Block Distorted Lever Tripping	(a) Replace Lever Tripping (b) In Emergency set Lever Tripping (c) Replace Breech Block (d) Re-set Lever Tripping
	(c) Worn Breech Block Bent	Engaging face of Breech Block Bent	(a) Adjust to correct angles (b) Replace Breech Block
	(d) Worn Bent of Sear	Engaging face of Sear	Replace sear
	(e) Breech Block jumps Sear	Most likely on Mk 2 Sear Examine Stop face controlling height	Increase engagement height
	(f) Friction in Trigger Mechanism (Sluggish)	Bent of Lever Tripping Freedom of Sear Weak Trigger Spring	Remove burrs and clean Remove burrs and clean Replace. In emergency Shorten

NOTE:— Loose holding of weapon may also cause automatic when change lever is at Repetition.

ARMOURERS' WING
Précis No. SA/24

Fault	Possible Cause	Point for Examination	Action to be taken
2. Failure to Feed			
(i) Cartridge does not leave Magazine	(a) Feed Horns fouling Back of Magazine	With Mag. assembled Horns of Breech Block will strip Magazine	Repeat tests with other Magazines to determine whether Magazine or Weapon is at fault. If Weapon, adjust as described (Defects on Examination Housing Mag. "B" and Test in another weapon with correct Magazine Housing. If Magazine is defective, remove metal at point of foul to give lead in and re-test
	(b) Defective Magazine	With Magazine assembled look for (a) Centrality of lips in relation to Ejector (b) Droop of Magazine causing lower lip to rise	
(ii) Bullet strikes Breech Face	(a) Magazine lips distorted	Angle of presentation of round in Mag. 80 Inside of lips for burrs	Re-set lips Remove burrs
	(b) Weak Magazine Spring		Replace weak Spring
(iii) Breech Block riding over in Magazine	(a) Magazine lips distorted or burred inside	Magazine and Breech Block for point noted in Column 2	Re-set lips to give correct angle of round
	(c) Platform sticking		Remove dents and clean Magazine
	(d) Sand or dirt in Magazine		Remove dents and clean Magazine
	(e) Breech Block Horns not square		Replace Breech Block
	(f) Breech Block Horns worn		Replace Breech Block
	(g) Damaged Magazine Case		Test weapon with another Magazine
(iv) Where round is bent	(a) Heavy Spring, Extractor	(a) Examine Round	If heavy remove 1 coil
	(b) High Striker Protrusion	(b) Examine Extractor Spring Check Striker Protrusion	Reduce Striker Protrusion

Fault	Possible Cause	Point for Examination	Action to be taken
3. Failure to Eject			
(i) Empty case trapped sideways between Breech Block and Casing	(a) Erratic Recoil	Ammunition	As in 1 (i) (a)
	(b) Dirty or Rusty Chamber	Chamber	Clean Chamber
	(b) Burrs or fouling in Chamber (Shoulder)	Chamber	Remove fouling and burrs
	(d) Broken Ejector	Ejector	Casing U/S. Replace Mk 2 only
	(e) Ejector shallow	Distance between Ejector and Breech Block	Remove Housing Mag. and set Ejector towards Breech Block
	(f) Heavy Extractor Spring	Extractor Spring	Remove 1 coil
	(g) High Striker Protrusion	Striker Protrusion	Reduce Protrusion

4. Firing single shots when set at "Auto"			
(i) Breech Block interferes with Lever Tripping	(a) High Toe on Lever Tripping	Smoke Breech Block and Examine for Witness Marks Lever Tripping	Stone down Toe of Lever Tripping
	(b) Distorted Lever Tripping		Re-set Lever Tripping
	(c) Breech Block fouling Boss at Sear axis	Remove and examine Sear	Remove metal from Boss
	(d) Loose Lever Change	Lever Change	Adjust as at 1 (iii) (a)
	(e) Worn Bent of Lever Tripping	Lever Tripping	U/S Replace

5. Trigger Action fails to release Breech Block			
(i) Bent of Lever Tripping does not engage with Sear	(a) Bent of Lever Tripping damaged	Lever Tripping	Lever Tripping U/S Replace
	(b) Sear Stop Face High	Casing and Sear at point of contact	File out top of Trigger Stop Face

ARMOURERS' WING

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Fault	Possible Cause	Point for Examination	Action to be taken
6. Misfire			
(i) Breech Block fails to fire round	(a) Low Cap of Round	Ammunition (this is not frequent)	
	(b) Momentum impeded by Horns of Breech Block fouling lips of Magazine	Magazine	Adjust as in 2 (i) (a)
	(c) Loose Barrel	Nut Barrel and Barrel	Tighten Nut Barrel
	(d) Dirt or fouling in Cartridge Recess, Face of Breech Block or Beech Face	Examine points as in Col. 2	Clean
	(e) Low Striker Protrusion	Check Protrusion	Breech Block U/S Replace
7. Burst Case			
(i) Round fired prematurely	(a) Dirt or fouling in Chamber	Chamber	Clean Chamber. Determine if Bullet lodged in Bore. Remove and examine Barrel for Bulge. If Bulged replace.

LISTS OF CHANGES

B7342	Feb	43	Mks 1, 1*, 2 and 3	
7365	Mar	43	Bayonets Sten 9 mm Mk 1	
7466	Mar	43	Guard Ejection opening Mk 2	Intro
7467	Mar	43	Handle cocking Mk 3	New Pattern
8073	Aug	43	Fillers Mag 9 mm Mk 1	Obsolescent
			Fillers Mag 9 mm Mk 3	Obsolete
8245	Sept	43	Butts No. 3 Mk 1	New Pattern
8249	Sept	43	Covers trigger mechanism Mk 1	} Alternative Patterns
			Covers trigger mechanism Mk 2	
8252	Sept	43	Grips Pistol No. 2 Mk 1 (Airborne)	Intro
8932	Feb	44	Blocks Breech Mk 1*	Extended use
			Blocks Breech Mk 1	Obsolescent
9035	Mar	44	Collars Spring Return	Intro
			Handles cocking Mk 4	New Pattern
			Handles cocking Mks 1, 2, 3	Obsolescent
			Sten Mks 1, 1*, 2 and 3	Mod in accordance with above
9464	Mar	44	Handles cocking Mk 5	New Pattern
			Handles cocking Mk 4	Obsolete
9870	Mar	44	Sten Mks 1, 1*, 2 and 3	Mod (Mk 5 cocking handle)
9871	Mar	44	Barrel Mk 2	Alternative Pattern
9999	Dec	44	Sten Mks 1, 1*, 2 and 3	
			Blocks Breech Mk 1*	Obsolescent
C 114	Jan	45	Butts Mk 2	Obsolescent
915	Jun	45	Mags Carbine 9 mm Mk 2	New Pattern
			Mags Carbine 9 mm Mk 1	Obsolescent
1024	July	45	Eqpts Repairing Mags Sten	1. Intro 2. Obsolete

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ACIs

563 of 1942	Mks 1 and 2. Scale of Ancillaries
1036	
1790	1942 Mk 2. Positioning of barrel
2697	1942 Mk 2. Corrosive liquid in Mk 2 Butts
25	1943 Mk 2. Damage to screw holes in trigger mechanism plate
1599	1943 Mod to sling
1848	1943 Damage to screws and threads of Magazine Catch Retainer
39	1944 Mod to Hooks, sling
800	1944 Mod to Hooks, sling Mk 3 Sten
801	1944 Mk 3. Fixing of loose Barrels
475	1945 Inspection hole of magazine.

CARBINES MACHINE STEN

Regulations affecting the above weapon.

EME Regs

SA and MG

D 933

Page 1

Making of Template—angle of presentation—
Magazines

ARMOURERS' WING

Précis No. SA/24

CARBINES MACHINE STEN

Regulations affecting the above weapon.

21 A.G.

SA and MG

EME Regs

D 934

Page 1

Method of Locking Barrel Nuts

Mod Inst No. 1

D 934

Page 1

Tightening of loose Barrels

Mod Inst No. 2

CARBINES MACHINE STEN

Regulations affecting the above weapon.

21 A.G.

EME Regs

SA and MG

D 937

Mod Inst No. 1

Fitting of Cocking Handle Mk 5

CARBINES MACHINE STEN

Regulations affecting the above weapon.

SA and MG		EME Regs
E 703	Page 1	Fitting of No. 3 Mk 1 butt, or No. 2 Mk 1 pistol grip
	Page 3	Damaged magazines
	Page 4	Removal of front pistol grip (Mk 5)
	Page 5	Fitting of No. 3 Mk 1 butts to Mk 2s Stens
	Page 7	Method of attaching sling to Mk 2 and 6 Stens
	Page 9	Cleaning of slightly rusted or corroded barrels in new weapons

CARBINES MACHINE STEN

Regulations affecting the above weapon.

EME Regs

SA and MG

E 704

Page 1

Tightening of Barrels of Mk 3 Sten

CARBINES MACHINE STEN

Regulations affecting the above weapon.

EME Regs

SA and MG

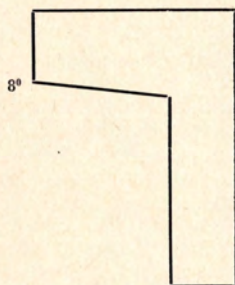
E 707.	Mod Inst No. 1	Summary of Mod Insts
	" " No. 2	Fitting Mk 5 Cocking Handle

21 AG AND RHINE ARMY TECHNICAL BULLETINS

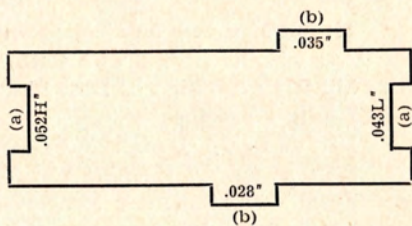
SA, MG and Mortars

Para	3	Fitting of covers on ejection and cocking handle openings
	30	Assembly of Spring with Collar
	67	Mk 5. New design of Butt Plate
	99	Faulty magazines
	111	Mks 2s and 6. Design and cleaning of
	112	Man. of special cleaning rod for "S" Stens
	113	Front end of silencer torn away
	132	Mk 5. Sears Mk 3/1 production
	Magazines Mk 1	Obsolescent Sling swivel Mk 2
	Mk 2	For all Stens Plate cover Mk 2

STEN GAUGES



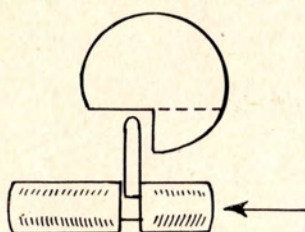
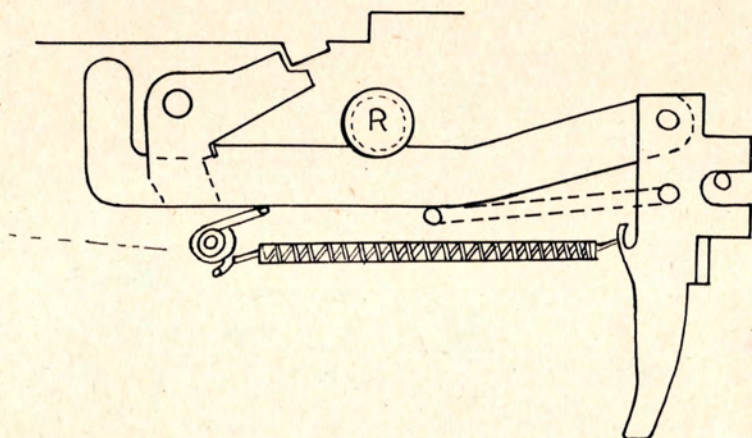
Presentation of Round
in Magazine.



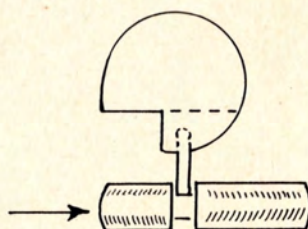
- (a) Protrusion of Extractor from face of
Breech Block.
- (b) Striker Protrusion.

Carbines, Machine, Sten 9m.m.

Trigger Mechanism. - Cocked.



Automatic.



Repetition.

View from the Rear.

PISTOLS REVOLVER No. 2

Introduced into the service by L of C A6862 of July 1932, to replace Pistols Rev No. 1 Mk 6. The No. 2 being of the same principle but of a lighter pattern and firing a .38 cartridge.

A few characteristics and comparisons between the No. 2 and No. 1 Pistol Rev are listed below.

	Pistol Rev No. 2	Obsolete Pistol Rev No. 1 Mk 6
Weight	1 lb 11.5 ozs	2 lbs 66.5 ozs
Length of Barrel	5"	6"
Rifling	7 grooves R.H. 1 turn in 15"	7 grooves R.H. 1 turn in 20"
Bore	.352"	.445"
Sighting Radius	5.75"	6.885"
Muzzle Velocity	600 ft p. s.	640 ft p. s.
Striking energy at 500'	59 ft lbs	81 ft lbs
Recoil energy	2.6 ft lbs	2.4 ft lbs
Extreme range	1500 * at 32° Elev.	1550 yards at 32° elevation
Killing range	500 feet	625 feet
Mainspring weight	3—3.5 lbs	3.75—4.25 lbs
Pull — off hammer cocked	5—6 lbs (No. 2 Mk 1)	6—8 lbs
— off trigger action	13—15 lbs ((No. 2 Mk 1) 11—13 lbs (No. 2 Mk 1 1* and 1**)	15—18 lbs
Barrel catch spring	3—5 lbs	4—6 lbs

GAUGES No. 2

C.H.S. (Slip Gauge)	0.67"
Striker protrusion	.04" low .05" high radius .038"
Barrel	.352" accept .358" reject
Cylinder	H .392" Rear face should not flash with rear end H .364" Reject front end L .387" Accept rear L .359" Accept front

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Chamber is tapered over a distance of
.765" from rear end.

Cylinder clearance from breech end of
Barrel

.006" to .008"

Alignment of Cylinder and Bore

Plug compound with handle
(.3517 × 21) with six steel
dummies

Height of Cylinder stop

.04" to 0.5"

DIFFERENCE IN MKS — PISTOL REVOLVERS No. 2

Mk 1 was declared obsolescent in March 1939 and the Mk 1* introduced. The difference between Mk 1 and 1* being:—

Hammer Mk 1* has comd and bent removed, thus permitting double action only.

Spring main Mk 1* is lightened in order to reduce the weight of pull-off Double action from 13—15 lbs to 11—13 lbs these springs can be easily identified by the centre punch mark on end of short arm.

Stock sides hand L & R Mk 2 these are designed to give a better grip, the top being grooved to form a seating for the palm, the right side piece is recessed for a disc marking and is similar with but smaller than Reg disc on Rifle No. 1. The disc replaces the nut screw stock used on Mk 1 pistol and is threaded in the central hole for the Mk 2 screw stock which are one tenth longer than the previous pattern.

The Mk 1 pistols will be converted to Mk 1* as and when they pass through Workshops for repair.

Mk 1* to Mk 1**

On the Mk 1** the safety stop is omitted therefore making hammer, trigger and body easier to manufacture.

The above-mentioned components becoming, Body Mk 1*, Hammer Mk 1**, and Trigger Mk 1*.

STRIPPING NOTES

Cylinder

When stripping or assembling be sure to ease tension of Extractor spring before removing or replacing Extractor nut.

This is to avoid distortion of spring.

Hammer

Axis pins will be removed only as and when necessary.

Care should be taken to Centre punch axis pin after assembling, in order to prevent them from working out.

The Centre punch should have an 80° point to ensure the fixing of pin, which is countersunk at each end of 60°.

NOTE:—Pins axis striker are larger in diameter than the pin catch hammer and swivel.

Trigger

When stripping or assembling catch trigger be sure to fully depress spring before removing or replacing pin catch trigger.

NOTE:—1. Body, barrel and cylinder have a corresponding number.

2. Plate body and body have also corresponding numbers which do not correspond with the governing number.

3. Pistol must not be snapped with the body plate removed.

STRIPPING

1. Unscrew the cam lever fixing screw, and remove the cylinder.

2. Unscrew the stock screw and remove stock sides.

3. Unscrew barrel catch screw, and remove barrel catch and spring.

4. Unscrew the body plate screws and remove plate.

5. Remove the main spring with thumb and finger. Lift out Pawl.

NOTE:— Pliers must not be used for this purpose.

6. With a No. 5 drift, knock out the main spring lever pin and remove lever.

7. Take out the hammer, trigger and safety stop, cylinder stop and spring.

8. Unscrew the lever cam screw and remove the lever.

9. Unscrew the pin joint screw, knock out the joint pin, and remove the barrel from the body: the extractor lever can now be removed.

10. Unscrew the cam screws, and remove the cam.

11. To strip the cylinder, unscrew the extractor nut, and remove the spring and extractor.

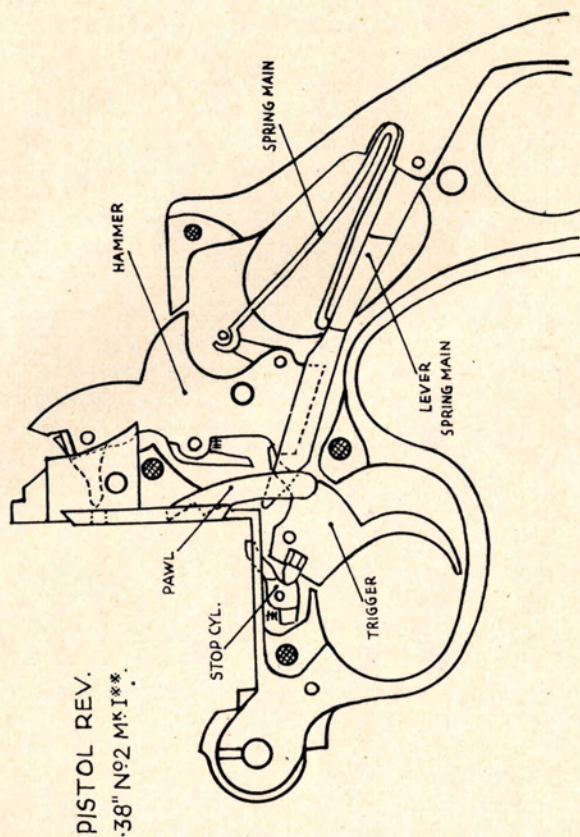
ASSEMBLING

1. To assemble the cylinder, replace the extractor and spring, and screw home the extractor nut.
2. Replace the cam and screws.
3. Replace the extractor lever, assemble the barrel to body, replace pin (taking care that the stud on the pin joint is opposite the recess in body) and screw home the pin joint screw.
4. Replace the cam lever, the cam lever screw and cam lever fixing screw.
5. Replace the cylinder stop and spring, trigger and hammer.
6. Replace the main spring lever and tap home the lever axis pin.
7. Replace the main spring, using the thumb and finger (see NOTE in Instr 5 of Stripping).
8. Replace the pawl, after slightly raising the main spring lever by means of a screw-driver.
9. Replace the body plate and screws.
10. Replace the barrel catch spring, the barrel catch and screw (using cramp provided).
11. Replace the stock sides and screw.
12. Replace the cylinder, see that it revolves on its axis, and tighten the cam lever fixing screw.

Action of Mechanism

Pull-through or Double Action

On pulling the trigger, the trigger catch being engaged in the recess in the cylinder stop, forces the stop down clear of the cylinder. The nose of the trigger meets the hammer catch, rotates the hammer and compresses the mainspring. The pawl rises and engages the ratchet teeth of the extractor thereby rotating the cylinder. Trigger catch slips away from the cylinder stop which rises and frictions on cylinder. The mainspring lever is lifted, due to being connected with the pawl thus compressing the short arm of the mainspring. The safety stop, being attached to the trigger is made to rise clear of the hammer, the nose of the trigger slips from the hammer catch and owing to leverage on the trigger, the pawl still rises completing the rotation of the cylinder. The cylinder stop engages in the appropriate recess in the cylinder thus preventing over rotation. The hammer flies forward through the medium of the long arm of the mainspring which is attached to the swivel, and strikes the cap. On releasing the trigger the short arm of the mainspring forces down the mainspring lever and the shoulder of the latter bearing against the



rebound arm of hammer withdraws the striker within the firing pin hole and clear of the cap. The blade portion of the mainspring lever resting on the pawl returns the trigger to its original position. The safety stop moves down with the trigger and interposes between the hammer and the body. The pawl positions below the next ratchet tooth, and trigger below hammer catch, the trigger catch returns to its position on the cylinder stop.

NOTE:— There is no "safety stop" action on the P.R. No. 2 Mk 1**.

Single Action (P.R. No. 2 Mk 1 only)

Pressure on thumbpiece of hammer rotates hammer, the shoulder on which the full bent is formed engaging under nose of trigger rotates trigger until such time as the nose of trigger engages bent of hammer. Pressure on trigger disengages nose of trigger from bent of hammer and hammer flies forward. The rest of the action is as for "Pull-through or Double Action".

Mechanical Safety

Should the head of the hammer receive a blow, the hammer would not strike the cap due to the following action.

Pressure on the hammer causes it to rotate and the rebound arm bearing on the rebound shoulder of the mainspring lever causes the latter to rise, the tail being engaged in safety stop on the pawl causes the pawl to rise and the trigger being engaged with the pawl causes this to rise and forces the shoulder of the trigger against the hammer catch, thus locking the action and preventing the hammer from moving further forward. In the P.R. No. 2 Mk 1 and 1* the safety stop interposes between the front face of the hammer and the body recess preventing the hammer from being forced forward.

A further safety measure is that the weapon cannot be fired until the barrel catch is fully forward by reason of the head of the hammer automatically closing the catch when the hammer flies forward. When this occurs, a misfire due to diminished blow is propable.

Extraction and Ejection

On breaking the revolver the shoulder of the extractor lever is engaged by the front of the body and rotates the extractor lever on its axis pin, forcing the neck of the lever against the extractor nut, compressing extractor spring and ejecting the cases by the extractor being forced out of its seating in the cylinder. Continuing the breaking of the pistol, the frictional surface of the extractor lever bearing against the frictional surface of the barrel is forced inwards on its auxiliary, compressing the spring, until the shoulder of the extractor lever disengages from the front of the body, and the extractor lever returns to its normal position under the influence of the extractor spring, the extractor lever being rotated on its pin.

On closing the pistol the body rides over the frictional surface of the extractor lever until clear of the shoulder when the extractor lever, under the influence of the compressed auxiliary spring, is forced out so that the shoulder will re-engage the face of the body when pistol is opened.

Examination, Tests and Adjustments

Ensure weapon is unloaded.

The numbers on the body, barrel and cylinder should agree. Replacement of body, barrel, shield or cylinder may be carried out in fourth line workshops only.

Examine weapon for burrs, distortion, looseness of joints, general wear and tightness of screws. Break pistol and view bore and chambers of cylinder for pitting, bulges etc., ensure that the .352" plug gauge runs through the barrel and that .358" plug gauge is rejected. Gauge chambers of cylinder. .387" rear of cylinder with double-ended accept plug .359" front.

With hammer in the rebound position apply the .067" slip gauge across each chamber and face of the shield, should the gauge enter freely the C.H.S. is too great and a new shield will be fitted. Ensure there is clearance of .006"-.008" between breech end of barrel and front of cylinder. Using "Pokering" gauges, (six dummy gauges, compound plug gauge and rod), test proper alignment of chambers with bore of barrel. This may be done visually if gauges are not available.

Gauge the protrusion of striker through shield with .04" low and .05" high gauges, if low, replace striker, if high stone down maintaining correct radius.

Test hammer for free movement and slight overdraw, if there is no overdraw metal may be removed from rear of hammer neck, first of all ensuring there is sufficient "lift" on the trigger, this is obtained by removing metal from back of trigger nose.

Using a dummy round, test for central striking, must strike within a limit .015" of centre.

Using six dummies test for Extraction and Ejection, the extractor should rise to a height of .73".

With the hammer in the fired position ensure that peak does not foul the barrel strap. Test for security of nose of trigger in bent of hammer (No. 2 Mk 1 only). Cock weapon and attempt to push hammer forward.

Ensure correct functioning of cylinder stop, should be approximately .05 above body.

Test weight of springs.

Spring Barrel Catch

With pistol open should require a pull of 3 to 5 lbs to move barrel catch.

Spring Main

Hold pistol in vice by barrel (using lead clamps), trigger pressed, hammer forward, apply loop of string over hammer. To move hammer should necessitate a pull of between 3 and 3½ lbs for Mk 1 spring and a shade less for Mk 1* springs.

Trigger Action

With pistol held in vice or lying on one side on bench (ensure cylinder is not being fouled), apply weight test to trigger ensuring that pull is in line with normal finger-pull. Weight should register between 11 and 13 lbs for Mk 1* mainsprings and 13 and 15 lbs for Mk 1 mainsprings.

Adjustments

Faulty Extraction

Failure of the extractor to rise may be due to the extractor nut not being screwed home or to defective or broken extractor lever spring.

Failure of extractor to return may be due to a burr set up either at the inner edge of the circular joint of the body or on the shoulder of the extractor lever.

Short extraction may be due to wear at the shoulder of the extractor lever at "A" or at the inner edge of the shoulder of the body at "D".

When worn at "A" the extractor lever should be filed back at "C" and the shoulder "B" adjusted to ensure contact at the outer edge at "A" with the body shoulder "D".

The shoulder "E" of the barrel should then be adjusted back as necessary to obtain the full throw of the extractor.

Faulty cylinder stop. Earlier depression of the cylinder stop should be obtained by increasing the protrusion of the trigger catch by lengthening the trigger catch retaining pin slot at the rear end.

To increase height of cylinder stop file the lever trip face of the trigger catch as necessary. A sticking pistol may be caused by dirt or grit in the base of the cylinder axis or ragged edge on the clearance of catch trigger retaining pin or fixing pin.

Correct fitting of New Pawl

First check up height of stop cylinder, in the rebound position it should be approximately .05", then place in new pawl and draw the hammer to the

ARMOURERS' WING**Précis No. SA/25**

rear, if cylinder is jamming, very slightly reduce the lifting point of pawl until stop cylinder just clears its recess on cylinder, slightly round sharp edge at front of pawl.

NB: Too much metal removed from lifting point of pawl will cause the step of pawl to jam above the tooth of ratchet it should engage under.

With barrel catch removed, place hammer in fired position, keep trigger held back, this will keep step of pawl engaged with ratchet tooth of extractor, place finger on top of barrel strap to feel for lift, this would be due to step on pawl being too high and lifting strap from its seating on body. Reduce the height of step until no lift is felt. Cylinder to be held firmly in the fired position, angle of step to be the same as angle of lifting point. If pawl is slipping ratchet teeth, test this by lightly holding cylinder between thumb and finger pressing the trigger by double action to see if pawl is slipping. If so, file front of pawl slightly where it bears against bottom of its slot in shield, the pawl will lean forward more and engage more securely with ratchet teeth. A little extra height of pawl can be obtained by easing metal from back of trigger nose where it makes contact with inside corner of body, this allows further backward movement of trigger, and pawl is carried up thereby, so taking up play, or movement of cylinder in the fired position.

There are three blade foresights issued, left, central and right being offset .02" making a variation to the M.P.I. of 2.5 ins at 20 yds.

TABLE OF SCREWS, ETC. (BRITISH ASSOCIATION)

Component	Number	Diameter	T.P.I.
Screw, fixing, lever, cam	2	.185	31.4
„ catch, barrel	4	.1417	38.5
„ cam			
„ plate, body			
„ stock			
Nut extractor			
Screw, pin, joint (also	6	.1102	47.9
lever, cam)			
„ shield			
„ blade, foresight	8	.0866	59.1
Pin, extractor	10	.0669	72.6

PISTOLS REVOLVER No. 2

L of Cs

No.	Date	Detail
6862	July 1932	No. 2 Mk 1 Introduction and Nomenclature.
9586	March 1936	No. 2 Mk 1 Shortening of Striker Protrusion.
9600	" "	Braces Armrs Mk 3 Bits Cleaning No. 2 Mk 1 New Patt. •
		Bits Cleaning No. 1 Mk 1
9601	" "	Gauge Armrs .067".
		Gauge Armrs Hammer Point No. 2.
		Gauge Armrs Plugs .352".
		Gauge Armrs Plugs .358".
9586	" "	No. 2 Shortening Striker.
2289	March 1939	No. 2 Mk 1 Conversion and Obsolescent.
		No. 2 Mk 1* New Patt.
B 3041	Dec 1939	Action Skeleton Pis Rev No. 2 Introduction.
3972	Oct 1940	Cartridges S.A. Blank Rev .380" L Mk 1.
		Cartridges S.A. Drill Rev .380" D Mk 1.
B 6712	Sept 1942	No. 2 Mk 1** New Pattern.

PISTOLS REVOLVER No. 2

A.C.Is

<i>No.</i>	<i>Date</i>	<i>Detail</i>
169	1934	No. 2 — Re-armament of R.A.

PISTOLS REVOLVER No. 2

EME REGS

No.	Page	Detail
S.A.M.G.		
B 052	1	Pistol Revolver No. 2 Mk 1
		Pistol Revolver Webley .38 in Mk 4
		Pistol Revolver Smith and Wesson
		Cal .38
		Pistol Revolver Colt .38
		} Repair to Broken Hammer.
B 163	1	Identification of Pistols and Component Parts.

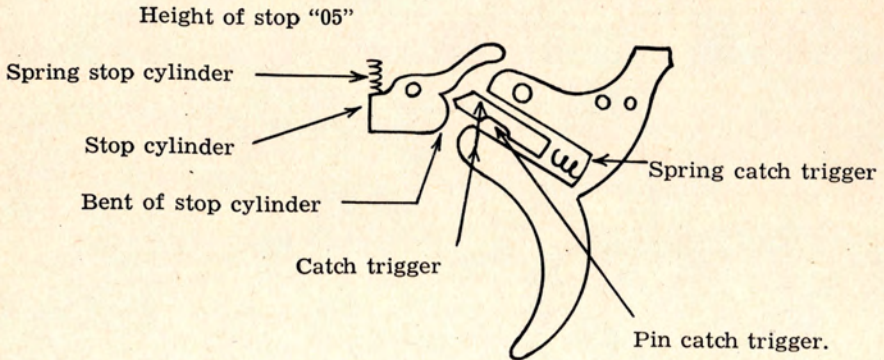
ARMOURERS' WING
Précis No. SA/25

PISTOLS REVOLVER No. 2
21 Army Group Tech Bulletin

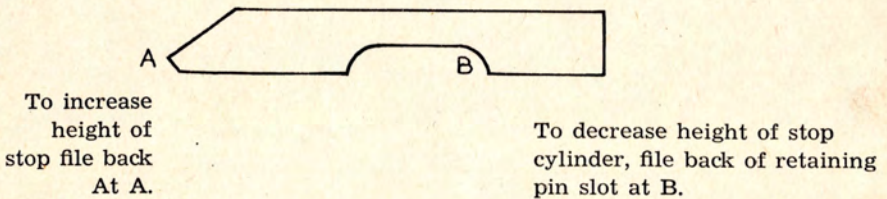
<i>No.</i>	<i>Date</i>	<i>Detail</i>
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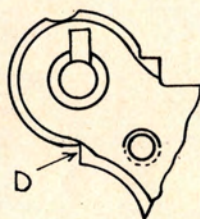
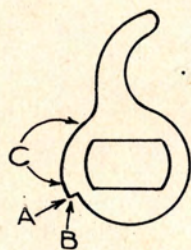
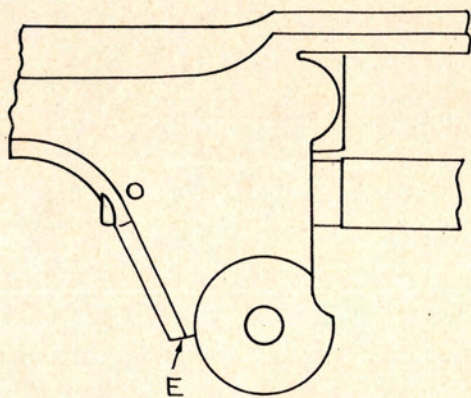
PISTOL REVOLVER No. 2

Trigger Mechanism
in rebound position.



Catch Trigger





PISTOLS SIGNAL 1"

Pistols Signal 1" No. 1 is a simply designed weapon introduced to fire 1" Signal Cartridges. Three Marks are likely to be met with in the service, Mk 3*, 4 and 5.

*Mark 3** A well constructed weapon the basic metal being a brass alloy. Consists of two main portions, barrel and body hinged together and held fast in closed position by "V" shaped, spring, controlling a barrel catch.

The Barrel, 1" diameter, has a trumpet shaped handguard fitted and houses the extractor mechanism. The body houses the trigger mechanism which in design is similar to a Pis. Rev .No. 2. Screwed to the body is a trigger guard. There is a safety action whereby the pistol cannot be "broken" when hammer is cocked nor can the hammer be cocked if the barrel catch is not fully home.

Mark 4 Similar in design to Mk 3* but basic metal is a zinc alloy. The trumpet shaped handguard is integral with the barrel. The barrel catch spring is a coil spring housed in two sleeves. The mechanism is of a different design, the mainspring being in the form of a coil spring located on a tumbler. The trigger guard is integral with the body.

Mark 5 Differs from the Mk 4 in that the basic material used is steel and the whole has been designed chiefly for simplicity and cheapness of production. The barrel is weldless steel tubing with barrel strap spot welded. The body is fabricated and comprises a left and right side plate, shield and trigger guard rivetted together. There is a "U" shaped barrel catch spring and the catch has no thumbpiece to facilitate operation. There is no safety catch.

The Mk 3 which may be met with is the same as the Mk 3* except the barrel has no trumpet shaped handguard.

STRIPPING AND ASSEMBLING

1. Do not use pliers when removing or replacing barrel catch springs of Mk 3 and 5 Pistols.
2. When assembling or removing tumbler and mainspring of Mk 5, compress spring and place punch in hole to retain tension of spring. When assembling Mk 4 or 5 the large projection of the tumbler must be uppermost.

ARMOURERS' WING

Précis No. SA/26

MECHANISM

ALL PISTOLS SIGNAL HAVE SINGLE ACTION ONLY.

Breaking Similar to Pistols Revolver No. 2.

Pressure on thumbpiece compresses spring catch barrel, catch is rotated free of barrel. On breaking pistol bent of lever extractor engages on shoulder of body rotating lever forcing out extractor and fired case. In the case of the Mk 5 the extractor lever bears on the trigger guard and there is no thumbpiece on the barrel catch.

Closing On closing the Pistol, the extractor is forced into its original position by coming into contact with the shield face.

Cocking On drawing the hammer to the rear the mainspring is compressed, the bent of the hammer engages under the nose of the trigger rotating the trigger and compressing the trigger spring until nose of trigger engages bent on hammer. As the hammer is drawn to the rear the safety catch is forced out by its inside end bearing on full thickness of hammer and so lies in the path of the barrel catch preventing the barrel catch from being operated. In the Mk 5 Pistol there is no safety catch action.

Firing Pressure on the trigger disengages it from the bent of hammer which flies forward under influence of compressed mainspring thus striking the cap.

Rebound

Mark 3* The hammer rebounds and the striker is withdrawn due to the short arm of the mainspring bearing on the seating on rear of hammer. Trigger returns to its original position under influence of its spring, when released.

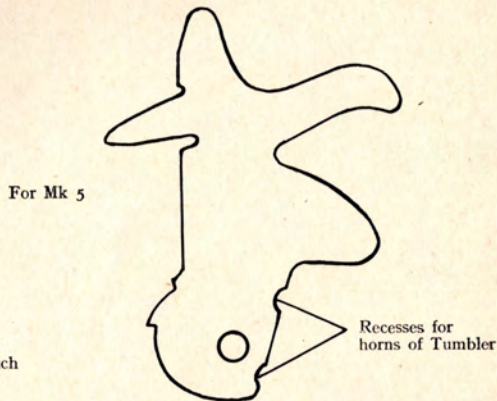
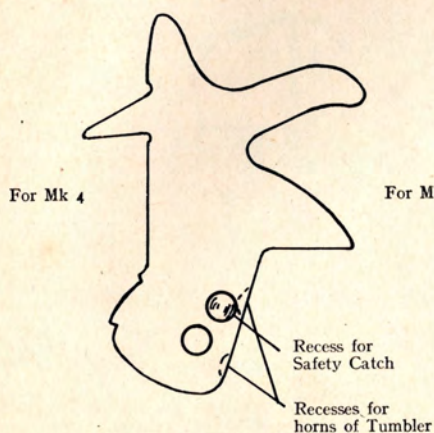
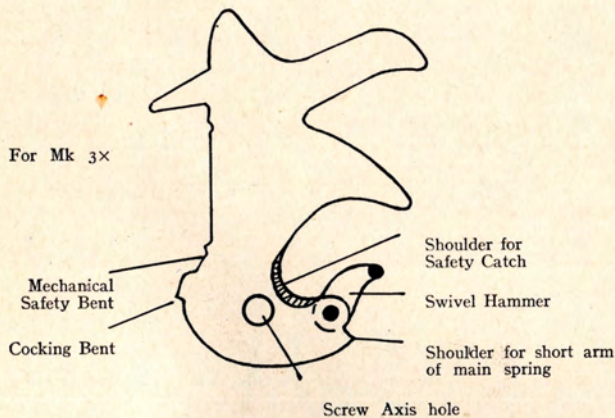
Marks

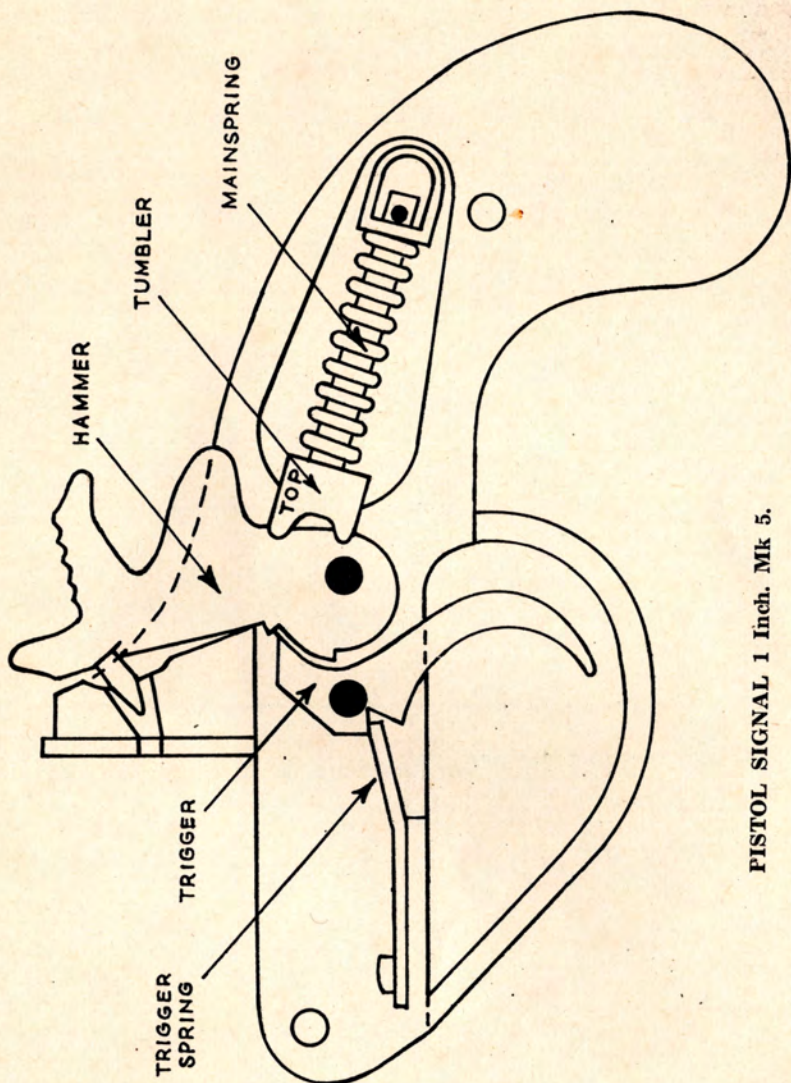
4 and 5 The hammer rebounds and the striker is withdrawn due to the lower or short projection on the tumbler bearing in a recess in rear of hammer, rotating hammer on its axis. Trigger returns under influence of its spring, when released.

Safety If, on loading the barrel catch is not properly home the hammer cannot be cocked due to the thumbpiece of the barrel catch lying in the path of the safety catch which must be forced out of its seating to allow hammer to rotate.

Pistols Signal 1 in

Hammers





PISTOL SIGNAL 1 Inch. Mk 5.

When hammer has been cocked the safety catch having been forced out by the hammer lies in the path of the barrel catch preventing it from being operated—the Pistol cannot be “broken” when hammer is cocked.

There is no safety catch on a Mark 5 Pistol.

Should a blow be given to the hammer in the rebound position it will not go forward due to the fact that the nose of the trigger is bearing against the upper bent of the hammer.

EXAMINATION, TESTS AND ADJUSTMENTS

Should the barrel or body be unserviceable the Pistol will be sentenced

“B.L.R.”

Dia. of Bore

1.05" accept

1.06" reject.

Examine for general wear, distortion, burrs, looseness of joints etc.

Special care must be paid to the barrel for dents and distortion to the trumpet shaped mouth.

In the case of the Mk 5, particular attention must be paid to rivetting and welding.

Test rebound and condition of hammer, ensure correct striker protrusion, .07" L. .075" H. (Gauges Hammer Point No. 1).

Ensure the weight of the pull off to be between 8 and 10 lbs, and weight of trigger spring between 3 and 4 lbs.

Test the safety catch for correct functioning, barrel catch may be set to ensure engagement, but friction on side of body must be avoided.

Cock the weapon and ensure that the bent of the hammer cannot be jarred off the bent of the trigger.

ARMOURERS' WING**Précis No. SA/26****PISTOLS SIGNAL**

Regulations affecting the above weapon.

A.C.I's

<i>Number</i>	<i>Year</i>	<i>Detail</i>
2553	1941	Maintenance of
42	1944	1" No. 1 Mk 4 Barrel Catch adjustment.

PISTOL REVOLVER, WEBLEY .38" Mk 4

GENERAL INFORMATION

Introduced into the Service during the War of 1939—1945 to augment the supply of Pistols Revolver .38" No. 2, this Pistol was manufactured by Webley and Scott Ltd. of Birmingham and bears their name and Trade Mark on the Barrel. The trade mark is a winged bullet.

In design and principle it is similar to the Pistol Revolver .45" No. 1 Mk. 6, but the Stop Trigger assembly is different.

It fires the same ammunition as the Pistol Revolver .38" No. 2 and most relevant gauges are common to both Pistols.

GENERAL CHARACTERISTICS

Weight.	1 lb 11½ ozs.
Length of Barrel.	5".
Rifling.	7 grooves. R.H. 1 turn in 15".
Feed.	Cylinder holding 6 rounds.
Sight Radius.	5.75".
Bore.	.352".
Muzzle Velocity.	600 feet per second.
Striking Energy at 500 feet.	59 foot pounds
Extreme Range.	1500 * at 32° Elev.
Killing Range.	500 feet.
Weight of the Mainspring.	3½ lbs.
Weight of the Pull-off Hammer cocked.	7—9 lbs.
Weight of the Pull-off Trigger action.	13—15 lbs.
Weight of the Spring Catch Barrel.	3—5 lbs.
Chamber Pressure.	4.7 tons per square inch.

STRIPPING AND ASSEMBLING

Stripping

1. PROVE THE PISTOL.
2. Unscrew the Screw Fixing Lever Cam Cylinder.
3. Rotate the Lever Cam Cylinder until the Cam Cylinder disengages from the Cylinder and remove the Cylinder.
4. Unscrew the Screw Stock Sides and remove the Stock Sides Left and Right.

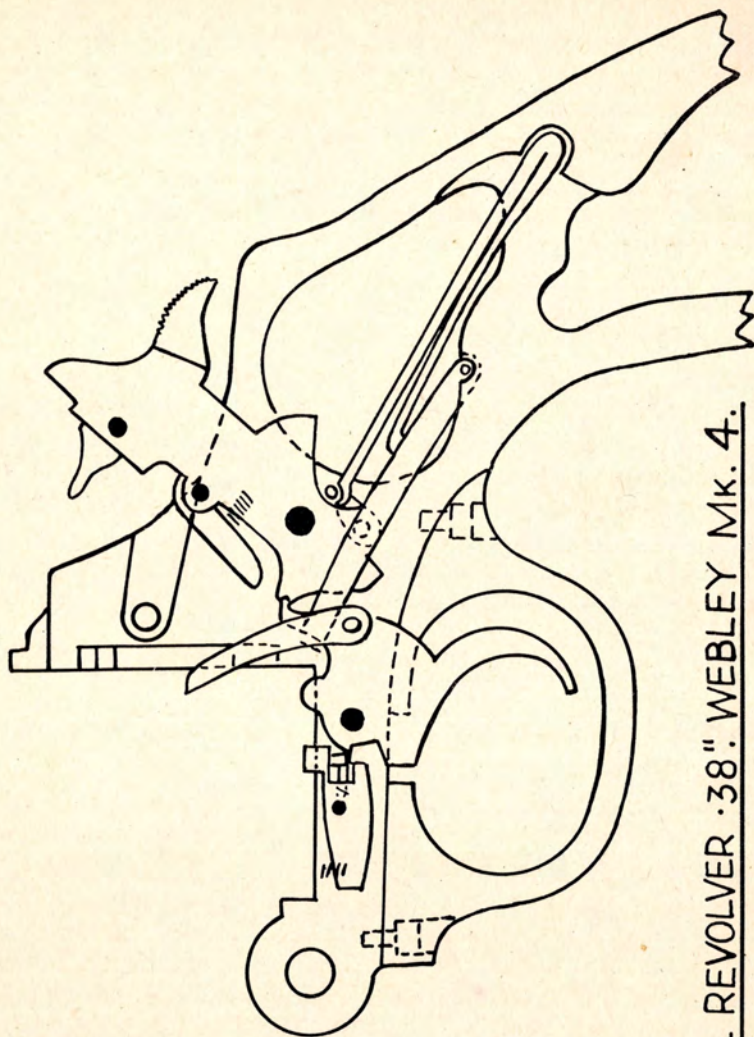
ARMOURERS' WING

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5. With the thumb and forefinger, remove the Spring Main out to the left and disengage the Claw of the Spring Main from the Swivel Hammer.
6. Remove the Lever Spring Main.
7. Remove the Screws Trigger Guard and the Trigger Guard.
8. Remove the Screw Trigger and remove the Trigger with Pawl.
9. Remove the Screw Hammer and withdraw the Hammer.
10. Remove the Pin Stop Cylinder, Stop Cylinder and Spring Stop Cylinder.
11. Remove the Catch Barrel by taking the tension of the Spring Catch Barrel by means of the Cramp and unscrew the Screw Catch Barrel. Remove the Catch Barrel and Spring Catch Barrel.
12. Unscrew the Screws Cam Cylinder (2) and remove the Cam Cylinder.
13. Unscrew the Screws Pin Joint and tap out the Pin Joint, with the Lever Cam Cylinder.
14. Withdraw the Barrel from the Body.
15. Withdraw from the Barrel, the Lever Extractor.

Assembling

1. Replace the Cam Cylinder and Screws Cam Cylinder to the Barrel.
2. Insert the Lever Extractor in the Barrel.
3. Assemble Barrel to the Body, position the holes for the Pin Joint and insert the Pin Joint from the left hand side, ensuring that the feather on the Pin Joint is seated correctly in its recess in the Body.
4. Replace and tighten the Screw Pin Joint.
5. Insert the Stop Cylinder and Spring Stop Cylinder in the Body and drive home the Pin Stop Cylinder.
6. Replace the Hammer and Screw Hammer.
7. Replace the Trigger with Pawl assembled and Screw Trigger.
8. Hold the Hammer in the approximate Rebound position and assemble the Lever Spring Main.
9. Engage the Claw of the Spring Main with the Swivel Hammer and compress the Spring until the short arm can be positioned on the Lever Spring Main and in its recess in the Body.
10. Replace the Stock Sides Left and Right and Screw Stock Sides.
11. Replace the Trigger Guard and the two Screws Trigger Guard.
12. Assemble the Cylinder to the axis of the Barrel, engage the Cam Cylinder and replace the Screw Fixing Lever Cam.
13. Test for functioning and check for correct assembly.



PISTOL REVOLVER .38" WEBLEY MK. 4.

COCKED POSITION.

Points to Note in Stripping and Assembling

1. Use the correct size of Screwdriver for each Screw.
2. The correct Tool should be made locally for the removing and replacement of the Spring Catch Barrel. *The use of Pliers for this operation is forbidden.*

THE ACTION OF THE MECHANISM

Cocking By Hand

As the Hammer is drawn to the rear, the shoulder on which the full bent is formed engages under the nose of the Trigger, rotating the Trigger to the rear.

The long arm of the Spring Main being attached to the Swivel Hammer is compressed.

The bent of the Trigger bearing against the shoulder of the Plunger Stop Cylinder, draws the Stop Cylinder downwards out of engagement with its recess in the Cylinder and compresses the Spring Stop Cylinder.

The Pawl, being attached to the Trigger, is lifted, its nose engages the next ratchet tooth on the Extractor and rotates the Cylinder in a clockwise direction one-sixth of a revolution to bring the next Chamber in line with the Striker Hole in the Body and Shield.

As the Pawl is lifted, the Lever Spring Main is raised by the shoulder on the Pawl bearing against the blade of the Lever Spring Main. As the Lever Spring Main is raised, the short arm of the Spring Main is compressed.

The bent of the Trigger disengages the shoulder of the Plunger Stop Cylinder, the Spring Stop Cylinder reasserts itself and forces the Stop Cylinder up to friction on the Cylinder, ready to engage the next recess in the Cylinder.

The Stop Trigger being integral with the Trigger, rises to engage its cannellure in the Cylinder to prevent over rotation of the Cylinder.

The nose of the Trigger engages the bent of the Hammer and the action is cocked.

Firing By Single Action

Assuming the Pistol to be Cocked, on pressure being applied to the Trigger, the nose of the Trigger disengages the bent of the Hammer the Pawl is forced slightly upwards completing the one-sixth of a revolution of the Cylinder, forcing the shoulder of the cannellure of the Cylinder against the Stop Trigger.

The long arm of the Spring Main reasserts itself and forces the Hammer forward, the Striker protruding through the face of the Shield to fire the Cap of the round in the Chamber.

The Rebound Action

Assuming the Pistol to be in the Fired Position, on releasing the Trigger, the short arm of the Spring Main reasserts itself, and, bearing on the Lever Spring Main forces it downwards.

The rebound shoulder of the Lever Spring Main bears against the rebound arm of the Hammer, rotating the Hammer to the rear and withdrawing the Striker from the front face of the Shield.

The blade portion of the Lever Spring Main bearing on its shoulder on the Pawl, forces the Pawl and trigger down to their original position, the Pawl positioning below the next ratchet tooth of the Extractor.

The nose of the Trigger as it moves downwards, bears against the front of the Catch Hammer, depressing it and compressing its Spring: until the nose of the Trigger disengages the Catch Hammer, allowing the Spring Catch Hammer to reassert itself and return the Catch Hammer to its normal position.

The Stop Trigger being integral with the Trigger, disengages from its cannellure in the Cylinder.

As the Trigger returns to the Rebound Position, the bent of the Trigger re-engages the shoulders of the Plunger Stop Cylinder.

Firing By Double Action

Assuming the Pistol to be in the Rebound Position, on pressure being applied to the Trigger, the nose of the Trigger engages under the Catch Hammer rotating the Hammer to the rear.

The long arm of the Spring Main being attached to the Swivel Hammer, is compressed.

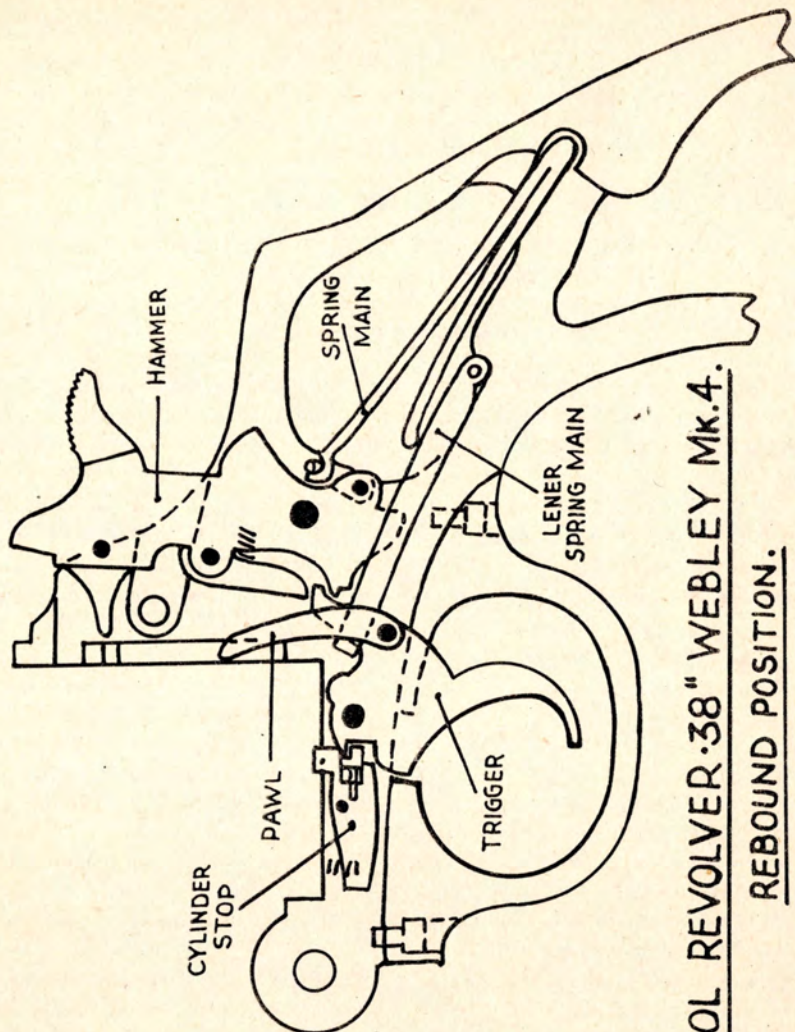
The bent of the Trigger bearing on the shoulder of the Plunger Stop Cylinder, draws the Stop Cylinder down out of engagement with the recess in the Cylinder, and compress the Spring Stop Cylinder.

The Pawl, being attached to the Trigger, is lifted, its nose engaging the next ratchet tooth on the Extractor and rotates the Cylinder in a clockwise direction one-sixth of a revolution to bring the next Chamber in line with the Striker Hole in the face of the Shield.

As the Pawl is lifted, the Lever Spring Main is raised by the shoulder on the Pawl bearing against the blade portion of the Lever Spring Main. As the Lever Spring Main is raised, it compresses the short arm of the Spring Main.

The bent of the Trigger disengages the shoulder of the Plunger Stop Cylinder, the Spring Stop Cylinder reasserts itself and forces the Stop Cylinder up to friction against the Cylinder ready to engage the next recess in the Cylinder.

The Stop Trigger, being integral with the Trigger, rises to engage its cannellure in the Cylinder to prevent over rotation of the Cylinder.



PISTOL REVOLVER .38" WEBLEY Mk.4.

REBOUND POSITION.

The nose of the Trigger disengages the Catch Hammer allowing the long arm of the Spring Main to reassert itself and force the Hammer forward, the Striker protruding through the Body and face of the Shield to fire the Cap of the round in the Chamber.

Extraction and Ejection

On breaking the Pistol, the shoulder on the Body bears against the bent of the Lever Extractor. The arm of the Lever Extractor forces the Extractor outwards compressing its Spring. The cam shaped face of the Lever Extractor is forced inwards by its seating in the Barrel Joint. When the Pistol is fully opened, the bent on the Lever Extractor disengages from the shoulder on the Body, leaving the Extractor free to fly inwards by the action of its compressed Spring, completing the ejection.

On closing the Pistol, the Lever Extractor returns to its original position by the Lever Auxiliary bearing on the Pin Joint, and an elongated hole is made in the Lever Extractor to allow this Movement.

Action of the Stop Cylinder

The Stop Cylinder is incorporated in the mechanism to form the means of retaining the Cylinder in the Rebound position.

Assuming that the Pistol is in the Rebound Position, on rotating the Trigger to the rear, the bent of the Trigger being engaged on the shoulder of the Plunger Stop Cylinder, rotates the Stop Cylinder downwards disengaging it from its recess in the Cylinder and compressing the Spring Stop Cylinder *before the Cylinder begins to revolve.*

Further rotation of the Trigger causes the bent of the Trigger to disengage the shoulder of the Plunger Stop Cylinder, allowing the Stop Cylinder to rise under the influence of its Spring, ready to engage the next recess in the Cylinder.

On releasing the Trigger, its bent engages the underside of the Plunger Stop Cylinder forcing it inwards and compressing its Spring until the shoulder of the Plunger Stop Cylinder is free to engage the bent of the Trigger.

During this movement, the Stop Cylinder should remain engaged with its recess in the Cylinder.

Action of the Stop Trigger

The Stop Trigger is integral with the Trigger and is incorporated in the mechanism to form a means of preventing over rotation of the Cylinder in the Cocked and Fired Positions.

It also forms a means of adjustment for mal-alignment of the bore of the Barrel with the Chambers of the Cylinder.

MECHANICAL SAFETY ACTIONS

Pistol in the Rebound Position

If the comb (or back of the head) of the Hammer should receive a blow, the Hammer would not move forward far enough for the Striker to protrude through the face of the Shield to fire the Cap, due to the following action:—

Forward pressure on the Hammer causes it to rotate, and the rebound arm of the Hammer bears against the rebound shoulder of the Lever Spring Main causing the latter to rise. The blade portion of the Lever Spring Main bears against the Safety Stud on the Pawl, and lifts the Pawl and Trigger, forcing the shoulder of the Trigger against the Catch Hammer thus locking the action and preventing forward movement of the Hammer and Striker.

Pistol Cocked, Barrel Catch not Fully Closed

If an attempt is made to fire the Pistol with the Catch Barrel not fully closed the top extension of the Hammer Comb will strike the Catch Barrel, thus closing it before firing.

A misfire may result owing to the diminished force of blow.

APPLIED SAFETY ACTION

There is no provision for an applied safety action on this Pistol.

EXAMINATION, TESTS AND ADJUSTMENTS

1. PROVE THE PISTOL
2. Check that the numbers of the Barrel and Cylinder agree with the Body number which is the Master Number.
3. Tighten all screws.
4. Remove the Cylinder and examine the Chambers for superficial fouling, corrosion, pitting, cuts, bulges, puckers etc.

Gauge each chamber with the following Plug Gauges:—

Front end of Chamber. .359 accept. .364" reject.

Rear end of Chamber. .387 accept. .392" reject.

If the Cylinder for any reason is considered unserviceable the Pistol must be evacuated to 4th Echelon Workshops for repair.

5. Examine the bore of the Barrel visually for fouling, corrosion, pitting, cuts, bulges, puckers etc.

The .352" Plug Gauge should run through the bore, the .358" Plug Gauge should be rejected. If the .352 gauge is not accepted, Pistol is u/s (EMER B 203 pt).

If the Barrel is considered to be unserviceable for any reason, the Pistol must be evacuated to 4th Echelon Workshops for repair.

6. Test the Bottom Joint for condition by opening the Pistol this should be achieved by a smooth, steady movement and without any slackness. If the joint is slack, and the Screw Joint is screwed up tight, remove a little metal from the end of the Pin Joint. Ensure that the feather on the Pin Joint is a good fit in its recess in the Body, if not, swage out the feather slightly. If the joint is still loose, the jaws of the Body may be set in slightly, blows with a rawhide mallet being carefully delivered evenly on both jaws.
7. Test the Barrel Joint for fit and condition; if excessive play is present the Barrel Catch should be adjusted or a new one fitted. The Barrel Catch, should, when fully closed, be upright.
8. Re-assemble the Cylinder to the Pistol, and with the Hammer in the rebound position, apply the .067" Slip Gauge across each Chamber and the face of the Shield. If the Gauge enters freely, the Pistol will be sentenced unserviceable (See EMER SA and MG B 203 P. 1).
9. Ensure that there is a clearance of .006"—.008" between the breech end of the Barrel and the front face of the Cylinder.
10. Using the "Poking Gauges" (six dummy gauges, compound plug gauge and rod) test the proper alignment of each Chamber with the bore of the Barrel. (This may be carried out visually if there are no gauges available.) If incorrect, adjust by setting the Stop Trigger in the required direction.
11. Gauge the Striker Protrusion it should be between the limits of .04" Low and .05" High. If the Striker Protrusion is low, replace the Striker. If high, stone down the point, maintaining the correct radius.
12. With the Pistol in the cocked position, test for "lift" on the Trigger. Hold the Hammer fully to rear and apply pressure to the Trigger, movement should be apparent. If there is NO movement, remove a slight amount of metal from the back of the Trigger nose until "lift" is obtained.
13. Cock the Pistol and test for "overdraw." If there is NO overdraw present, a little metal may be removed from the back of the Hammer neck *first of all ensuring that there is sufficient "lift" on the Trigger.* Overdraw is necessary to ensure that the bent of the Hammer and the nose of the Trigger can engage properly.

Excessive overdraw must be avoided as, when Cocking by Hand, the possibility arises of the bent of the Hammer and the nose of the Trigger being unable to engage, due to the over rotation of the Hammer allowing the Trigger to fly forward and fail to intercept the bent of the Hammer and cock the Pistol.

ARMOURERS' WING

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14. Test the Stop Cylinder for correct functioning; it should be free in the Cocked, Fired and Rebound positions. It should remain in engagement with the Cylinder throughout the Cocked—Fired—Rebound action, disengage from the Cylinder before the latter begins to rotate at the beginning of its movement from the Rebound to the Cocked position, and rise to engage the recess in the Cylinder again before the nose of the Trigger engages the bent of the Hammer.

15. Using six dummies, test for extraction and ejection, the Extractor should rise to a height of .73" i.e. high enough to allow the empty cases to be extracted fully from the Chambers and ejected.

Failure of the Extractor to rise may be due to the Extractor Nut not being fully tightened up, a weak or deficient Spring Lever Extractor.

Failure of the Extractor to fall may be due to burrs on the bent of the Lever Extractor or the shoulder of the Body.

To Increase the Height of the Extractor, which should be .73", file the back of the cam shaped face ONLY of the Lever Extractor from $\frac{1}{8}$ " behind the bent. This allows the bent to be forced further out, delaying its disengagement from the shoulder of the Body, thus increasing the height of the Extractor.

16. With the Hammer in the Fired position, ensure that the peak does not foul the Barrel Strap.
17. Test for the security of the Trigger nose in engagement with the Hammer bent by cocking the Pistol and attempting to push the Hammer forward.

18. Test the Weights of the Springs

Spring Catch Barrel. With the Pistol open it should require a pull of 3 to 5 lbs to move the Catch Barrel.

Spring Main. Hold the Pistol in a vice by the Barrel (using lead clams), hold the Trigger to the rear and the Hammer fully forward. Place the loop of the Spring Balance over the Hammer. The weight required to move the Hammer should be 3 to $3\frac{1}{2}$ lbs.

Trigger Action. With the Pistol held in a vice, or held firmly on its side on a bench, ensuring that the Cylinder will not be fouled, apply the weight test to the Trigger, ensuring that the pull is in line with the normal finger pull. The weight required is between 13 and 15 lbs.

FITTING A NEW HAMMER OR TRIGGER

If the Pistol Fails to Cock, break the Pistol, hold the Hammer to the rear and test for "lift" on the Trigger. If there is no "lift", remove a small amount of metal from the back of the Trigger nose.

If the Pistol Still Fails to Cock, remove metal from the back of the Hammer until the Pistol cocks and overdraw is obtained. Ensure that the Screw Guard Trigger is not excessively long. If it is it will foul the Lever Spring Main forcing it upwards and so causing a jam preventing the Pistol from being Cocked.

Cushioning of the Rebound Shoulder of the Lever Spring Main and the Rebound Arm of the Hammer

With the Hammer in the Fired Position, held firmly to the face of the Body, slight "lift" on the Trigger should be noticeable. If there is no "lift", reduce the rebound shoulder of the Lever Spring Main. Cushioning must be avoided as it will cause misfire due to a diminished blow.

FITTING A NEW PAWL

The Pawl must be free in its slot in the Body and Shield in the Cocked, Fired and Rebound Positions.

It must be long enough to hold the Cylinder firmly against the Stop Cylinder in the Fired Position.

There should be a little radial play of the Cylinder in the Cocked Position to permit the free engagement of the Trigger nose and the Hammer bent.

To Test For a Correctly Fitting Pawl

Break the Pistol and weigh the Pull Off. Close the Pistol and weigh the Pull Off. If there is any variation in the weights it denotes that the Pawl is long. Adjust by removing a small amount of metal from the lifting point of the Pawl, maintaining the angle and radius.

If the Pawl is slipping the ratchet teeth of the Extractor, remove a small amount of metal from the face of the Pawl at point "B" where it contacts the Body.

If the Pawl is sluggish, the inclined shoulder should be filed back at point "C", so that the blade portion of the Lever Spring Main will ride higher up the inclined shoulder on the Pawl thus giving extra forward drive.

FITTING A NEW STOP CYLINDER

The Stop Cylinder is incorporated in the mechanism to retain and prevent over rotation of the Cylinder in the Rebound Position.

It should rise and engage in its recess in the Cylinder in the Cocked, Fired and Rebound Positions, and should disengage from its recess before the Cylinder begins to rotate, and engage its recess BEFORE the nose of the Trigger and the bent of the Hammer engage in the Cocked Position.

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It should remain in engagement throughout the Cocked—Fired—Rebound Positions.

When depressed by hand in either the Cocked, Fired or Rebound Positions, it should spring up again.

To Increase the Height of the Stop Cylinder

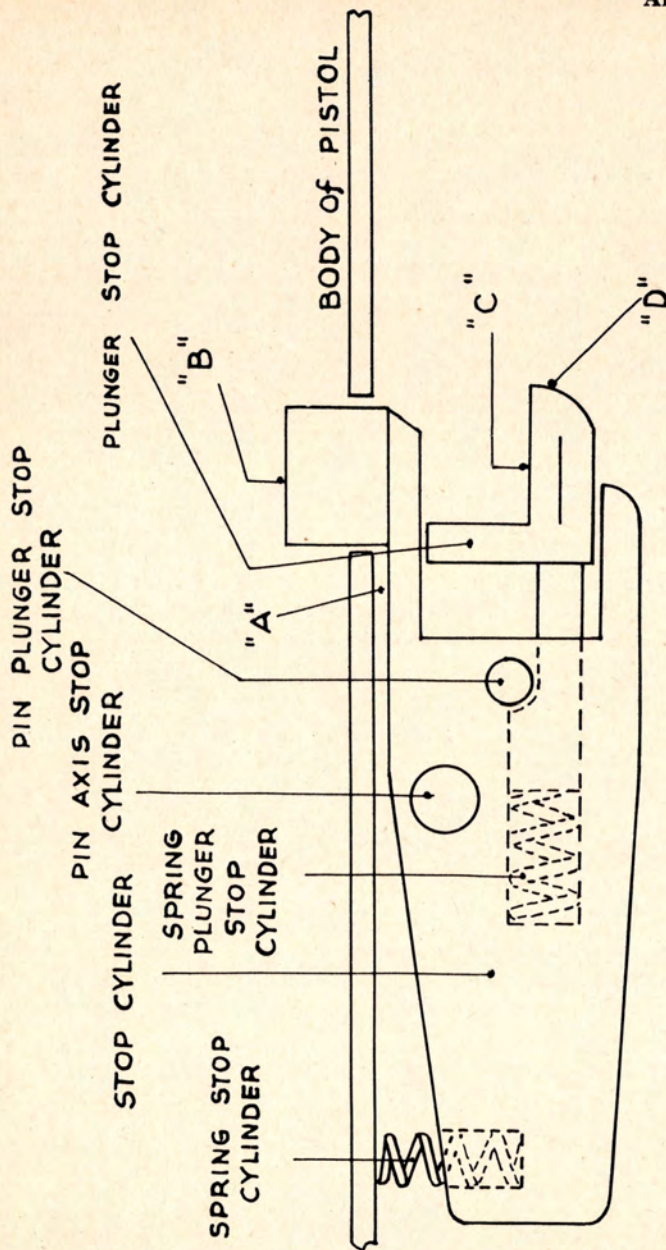
Ensure that the top surface "A" is not hard up against the shoulder in the Body, and remove a small amount of metal from surface "C" on the Plunger Stop Cylinder.

To Obtain Earlier Depression of the Stop Cylinder

The Stop Cylinder should be depressed before the Cylinder begins to rotate. If it fails to be depressed, exchange the Plunger Stop Cylinder: in an emergency, remove metal from point "B" of the Stop Cylinder, until the Stop Cylinder functions correctly.

To Obtain Earlier Release of the Stop Cylinder

The Stop Cylinder must rise before the action cocks. If it fails to do so, polish the point "D" on the Plunger Stop Cylinder.



STOP CYLINDER ASSEMBLY
PISTOL REVOLVER .38" WEBLEY MARK.4.

LIST OF CHANGES

Para	Date	Detail
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ARMY COUNCIL INSTRUCTIONS

Para	Date	Detail
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E.M.E. REGULATIONS

SA and MG

B 052	Page 1	Pistols Revolver No. 2 Mk. 1	}	Mod. to broken Hammers
		Pistols Revolver Webley .38" Mk. 4		
		Pistols Revolver Smith & Wesson .38"		
		Pistol Revolver Colt .38"		
B 203	Page 1	Pistol Revolver Webley u/s if:—		
		.352" is rejected.		
		Cylinder Axis loose.		
		.067 is accepted freely.		

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21 ARMY GROUP AND RHINE ARMY TECHNICAL BULLETINS
SA, MG and MORTARS

Para

Detail

PISTOL, BROWNING. F.N. 9 mm HIGH PRESSURE

General Description and Identification

This weapon is a recoil operated, magazine fed, self-loading pistol, in which the breech is positively locked at the moment of firing. The pistol was developed by John Browning and was first produced by Fabrique Nationale d'Armes de Guerre at Herstal in Belgium, and it is from the initial letters of the name of this armament factory, that the letters "F.N." in the designation of the pistol are derived.

Calibre .45-in Colt self-loading pistols are manufactured on the same basic principles as this weapon, thus, in many respects the actions of these two pistols are quite similar.

Two patterns of the pistol have been produced in Canada, the Mk 1 and the Mk 1*. The only difference between the two marks of pistols being slight changes in the design of the ejector, extractor and slide. These three re-designed components have "Mk 2" added to their designations, and the ejector and extractor are also stamped "2" for ease of identification. The re-designed (Mk 2) slide is not stamped "2", but can readily be identified by the complete weapon designation stamped on the left side, which has become "Mk 1*". The Mk 1 ejector, extractor and slide have no mark stamping on them, and they are not interchangeable, as individual components, with the Mk 2 ejector, extractor and slide. However, Mk 2 components may be used in conjunction with each other to replace Mk 1 components, or vice versa. Replacement of components in this manner will automatically change the designation of the complete pistol to Mk 1* or Mk 1 respectively.

Irrespective of Mark, pistols have been manufactured having two types of sighting arrangement. One type has an adjustable leaf backsight, graduated from 50 to 500 metres, and a body which has a slot machined in it for attachment to a wooden holster for use as a butt. The other has a square, notched, non-adjustable back-sight, formed integral with the slide, and the body of this pistol has no slot machined in it for attachment to the holster.

The pistol has an external hammer, which, for additional safety purposes is provided with a half-cock bent. Due to the design of the firing pin and the firing pin housing, the pistol may be safely carried with the hammer in the fired position and a live cartridge chambered, providing the hammer is allowed to go forward from the cocked position under careful control of the firer's thumb, and that the muzzle of the pistol is pointed safely while allowing the hammer to go forward. The use of the safety catch is a more positive safety device, and its use is recommended. The safety catch can only be applied when the hammer is in the cocked position. A holding open device is incorporated in the pistol.

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General Characteristics

System of operation	— Recoil and Spring. Not fully automatic, the trigger must be pressed and released for each shot.												
System of Breech	— Camming action of the barrel and the locking piece, causing the breech end of the barrel to rise when the slide is in the forward position, thereby engaging the locking lugs on the barrel with the locking recesses in the slide.												
Locking	—												
Type of Magazine	— Vertical box, with capacity for thirteen cartridges.												
Weight of pistol	— With empty magazine 2 lbs 1 oz.												
Mk 1 or 1/1 with fixed backsight	— With full magazine — 2 lbs 6 ozs.												
Weight of magazine (empty)	— 3 ozs.												
Overall dimensions of pistol	— Length — $7\frac{1}{4}$ ins. Width — $1\frac{1}{4}$ ins. Height — $5\frac{1}{8}$ ins.												
Particulars of barrel	— Length — $4\frac{3}{4}$ ins. Number of grooves — 6 Width of grooves — .103 ins. Depth of groove — .005 ins. Twist of rifling — R.H. 1 turn in 10 ins. Dia of Bore: — H .349. L .347 ins. (Across lands)												
Sights	— Backsight: Fixed with square notch, or leaf type, with 'V' notch, and adjustment for elevations from 50 to 500 metres in 50 metre increments. Laterally adjustable barley corn provided in 5 heights as follows:— <table><thead><tr><th>Height</th><th>Marked</th></tr></thead><tbody><tr><td>.125-in</td><td>2</td></tr><tr><td>.135-in</td><td>3</td></tr><tr><td>.145-in</td><td>4</td></tr><tr><td>.155-in</td><td>5</td></tr><tr><td>.165-in</td><td>Blank</td></tr></tbody></table> One change of sight will move the M.P.I. approx. 1-in at 20 yds.	Height	Marked	.125-in	2	.135-in	3	.145-in	4	.155-in	5	.165-in	Blank
Height	Marked												
.125-in	2												
.135-in	3												
.145-in	4												
.155-in	5												
.165-in	Blank												
Ammunition and muzzle velocity	— Cartridges, S.A. Ball 9 mm Mk 1z and Mk 2z. Approximately 1,200 feet per second.												

Stripping

Removal of Magazine and Slide from the Body

Remove the magazine, pull back the slide and ensure that a cartridge is not left in the chamber. Hold the slide to the rear, turn the safety catch so that the nib on top of the catch engages in the forward locking recess in the left side of the slide, thus locking the slide in the recoil position.

Remove the slide locking lever by pushing down on the pin portion of the lever which protrudes through the right side of the body of the pistol just above and forward of the trigger axis pin. Release the safety catch from the locking recess in the slide and allow the slide to move forward under control until it clears the guide lugs of the body.

Slide Group

Push the mainspring guide assembly forward compressing the mainspring, until the guide assembly clears its seating in the barrel. Remove the mainspring guide assembly and the mainspring. Lift out the barrel from the slide. NOTE:— The mainspring guide assembly should only be stripped for replacement of components.

Press the rear end of the firing pin, and remove the locking plate, taking necessary precautions to ensure that the firing pin does not fly out and become lost. Remove the firing pin and firing pin spring. With a suitable screwdriver placed in the locking plate groove of the extractor, withdraw the extractor from its housing in the slide by a levering motion on the screwdriver. Remove the arm pin and the sear connecting arm. CAUTION: Do not attempt to remove the arm pin before the extractor, as the pin is locked by the extractor.

Body Group

Unscrew the left and right stock screws, and remove the screws and stocks. Hold the hammer, release the sear from the hammer bent, and allow the hammer to move to the fired position under control. **Caution:** Do not allow the hammer to fly forward during this operation or serious damage to the sear nose may occur. Drift out the sear pin and remove the sear.

Turn the forward end of the ejector down, press out and remove the safety catch assembly. The hammer link assembly, ejector and sear spring can now be removed. To remove the hammer link spring from the hammer link, screw up the link spring nut until the pin retaining nut can be pushed out, then unscrew and remove the nut so that the link spring may be removed. The nut may be turned with the fingers.

Press in the magazine catch, approx halfway, and with a suitable screwdriver turn the magazine catch pin a quarter turn anti-clockwise. The magazine catch assembly may now be removed from the right hand side of the body.

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To remove the trigger assembly, drive out the trigger axis pin from right to left, move the assembly back into the magazine well of the body and remove the tripping lever. The trigger assembly may now be removed through the trigger guard by depressing the tripping lever plunger.

NOTE: The trigger assembly should only be removed to effect replacement of parts as the trigger axis pin is a drive fit in the body, and is also lightly rivetted. The pin has a cannellure turned concentric around the centre of its length. The two portions of the pin, either side of the cannellure are parallel, but one portion is approx. .002" larger in diameter than the other. The smaller dia portion of the pin can be identified by a chamfer on the end which protrudes through the right hand side of the body. Unscrew and remove the lanyard loop assembly from the body of the pistol.

ASSEMBLING

To assemble the pistol, generally reverse the order of stripping, paying particular attention to the following points:—

The smaller diameter (chamfered) end of the trigger axis pin must be entered into the trigger axis pin hole from the left hand side of the body.

After inserting the nut retaining pin through the hammer link, the link spring nut must be unscrewed until the pin is in full engagement with the recess in the bottom of the nut.

Replace the sear spring in its seating at the bottom of the body before assembling the hammer link assembly to the body.

The forward end of the ejector must be turned down, the safety catch hole in the ejector and the axis hole in the hammer must be lined up with the holes in the body before attempting to insert the safety catch. Ensure that the retaining lug on the pin portion of the safety catch is correctly positioned in the ejector before turning the ejector back up into its normal position.

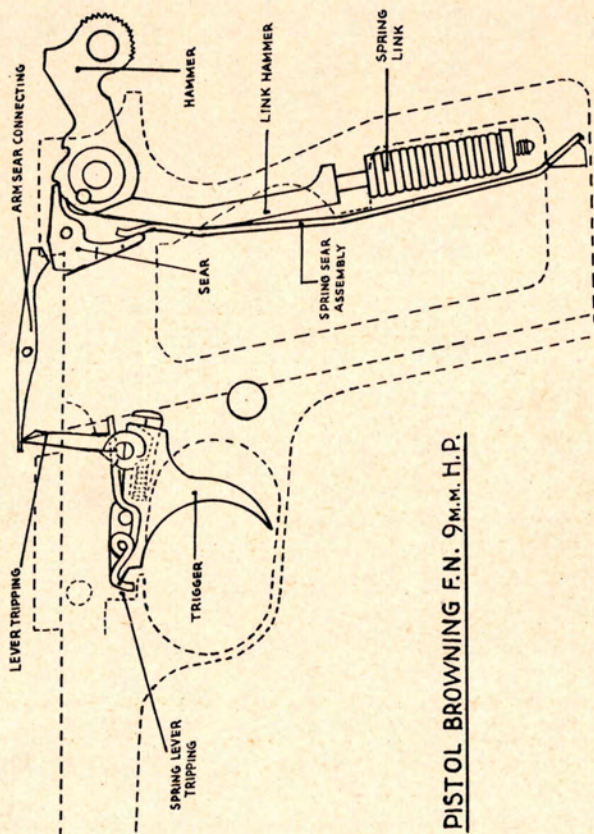
Assemble the sear connecting arm and the arm pin before replacing the extractor. When replacing the mainspring and mainspring guide assembly ensure that the guide is correctly seated in the barrel, the guide can be assembled top for bottom.

Correct position is when the longitudinal axis of the guide and mainspring is parallel to the axis of the bore.

ACTION OF MECHANISM

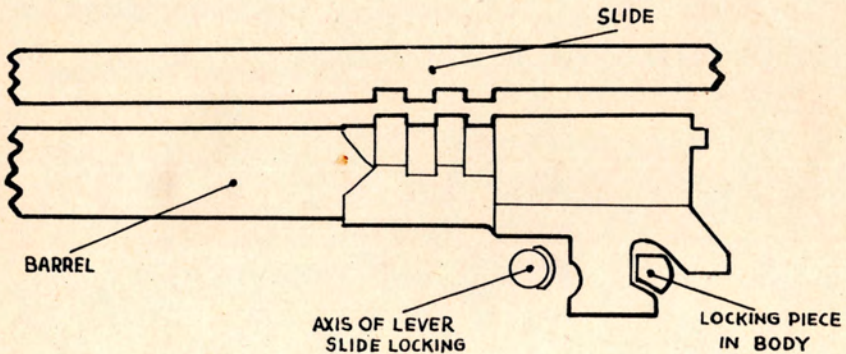
Initial Firing and Backward Action of the Slide

Assuming the pistol to be fully loaded, pressure on the trigger forces the tripping lever upward, causing the sear connecting arm to rotate and operate the sear. The sear, disengages from the hammer, thus allowing

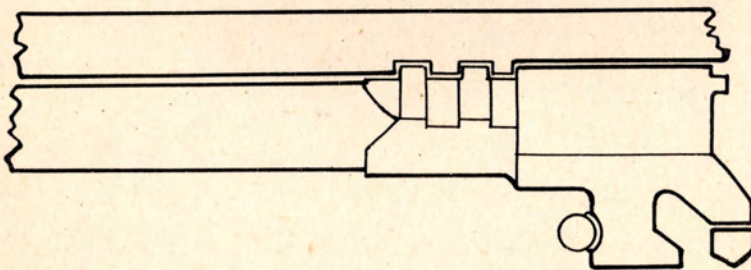


PISTOL BROWNING F.N. 9m.m. H.P.

PRIOR TO LOCKING

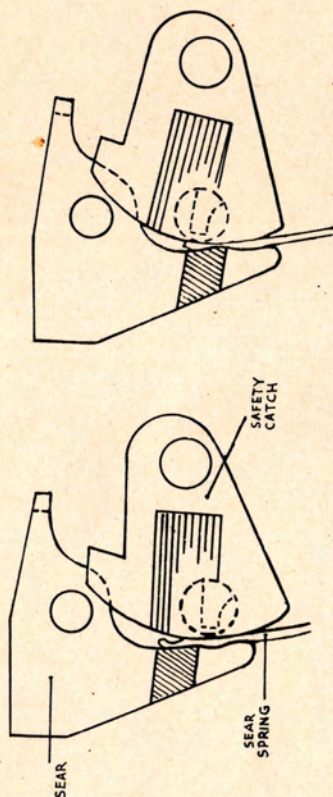


LOCKED



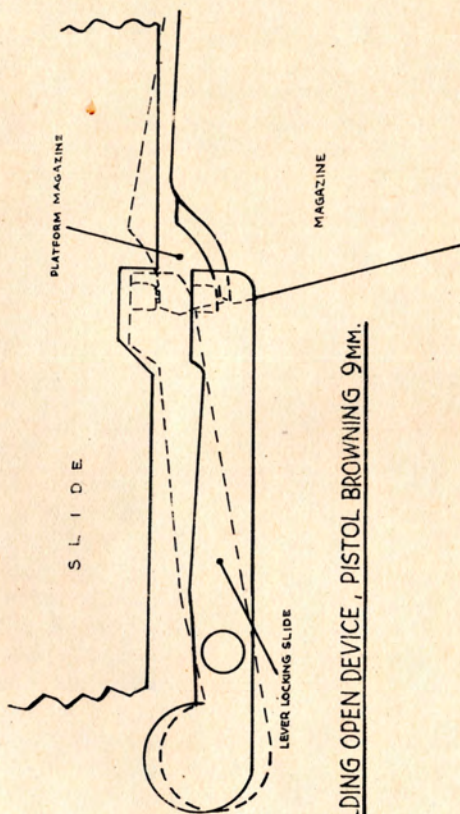
BREECH LOCKING, PISTOL BROWNING 9_{M.M.}

SAFETY MECHANISM—PISTOL BROWNING 9M.M.



FREE.
OPERATES IN COCKED POSITION ONLY. IN FIRED POSITION THE
LUG ON SAFETY CATCH ENGAGES UNDER PROJECTION ON SEAR.

APPLIED.



HOLDING OPEN DEVICE, PISTOL BROWNING 9MM.

the hammer to fall under pressure of the compressed hammer link spring. The nose of the hammer strikes the firing pin, drives it forward against the primer of the cartridge which is locked in the chamber, and also compresses the firing pin spring. Recoil energy from the fired cartridges forces the slide and the barrel to the rear for a distance of $\frac{3}{16}$ " at which point, the barrel is unlocked from the slide, due to the camming action caused by the barrel nose contacting the locking-piece, which forces the rear end of the barrel downwards and out of engagement with the locking recesses in the slide. The rearward movement of the barrel is then stopped by the locking piece, but the slide continues to move rearwards, opening the breech, and compressing the mainspring. The empty cartridge case, gripped by the extractor, is carried rearward out of the chamber of the barrel by the slide until the base of the case strikes the ejector, and the case is thrown clear of the pistol through the ejection opening in the right hand side of the slide. The slide during its movement to the rear, also rotates the hammer, compresses the hammer link spring, disengages the sear connecting arm from the tripping lever and allows the sear to return to its operative position through the medium of the sear spring. The rearward movement of the slide is arrested when the slide contacts its stop in the body, at which point the recoil spring re-asserts itself and drives the slide forward, leaving the hammer cocked on the sear.

Forward Movement of the Slide

During its forward movement, the lower portion of the breech face of the slide strips the top cartridge from the magazine and feeds it into the chamber of the barrel. When the cartridge is fully seated in the chamber, the extractor claw springs over the base of the cartridge case, and the rear projection on the underside of the barrel, coming into contact with the locking piece in the body, lifting the rear of the barrel into the locking recesses in the top of the slide. The barrel and slide continue to move forward together for a distance of $\frac{3}{16}$ ". Forward movement of the slide and barrel is then arrested by the barrel contacting the pin portion of the slide locking lever. With the action in this position the front end of the sear connecting arm is positioned behind the tripping lever and the trigger must be released, lowering the tripping lever allowing it to be moved rearward by the rear end of the tripping lever spring. The rearward movement of the tripping lever positions the lever underneath the forward end of the sear connecting arm. Further pressure of the trigger causes the action to commence the same cycle of operations.

Action of the Slide Locking Lever (Holding Open Device)

When the last cartridge from the magazine has been fired, extracted and ejected, the slide locking lever is forced into engagement with the forward locking recess in the left hand side of the slide, by the action of the magazine

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platform and spring. This locks the slide in the rear position with the hammer cocked, and indicates to the firer that the magazine is empty. When the magazine has been replaced by a fully loaded one the firer must press down on the thumbpiece of the slide locking lever in order to disengage the lever from the slide, thus allowing the slide to fly forward under pressure of the mainspring. As the slide flies forward, the first cartridge from the new magazine is fed into the chamber. The pistol is then ready for firing again.

Action of the Tripping Lever and Trigger Mechanism

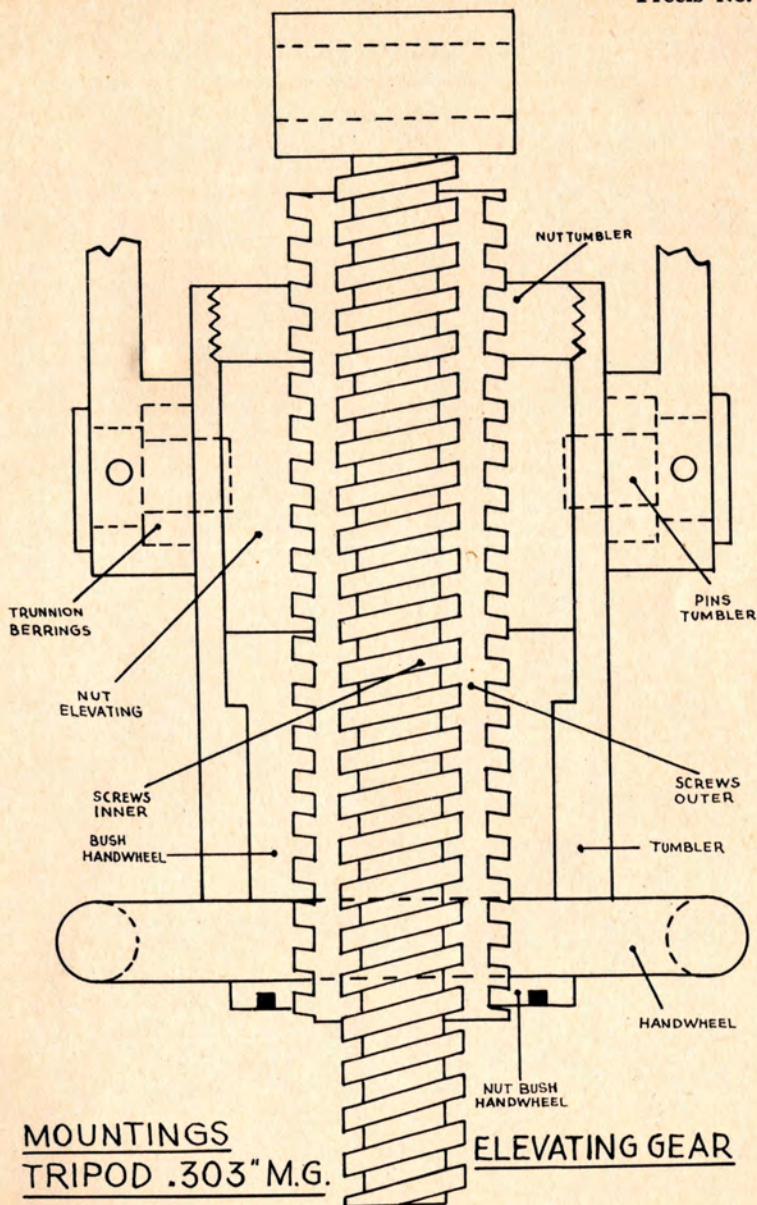
When a magazine is in place in the body of the pistol, the front wall of the magazine case depresses the tripping lever plunger, which compresses the tripping lever plunger spring, and pivots the top of the tripping lever rearwards in position so that it will operate the sear connecting arm when the trigger is pressed. Removal of the magazine from the body of the pistol allows the tripping lever plunger spring to force the tripping lever plunger into the magazine well of the body, causing the top of the tripping lever to move forward, where, if raised by pressure on the trigger, the top end of the lever will not contact the sear connecting arm, thus providing no means whereby the sear can be rotated in order to release the hammer.

Action of the Firing Pin

The firing pin, which is shorter than its housing in the slide is held to the rear by the firing pin spring, and relies entirely on the inertia imparted to it by the hammer and hammer link spring, to overcome the weight of the compressed firing pin spring and crush the primer of the cartridge. When the energy of the falling hammer and hammer link spring has been absorbed, the firing pin is withdrawn into the interior of its housing by the firing pin spring.

Action of the Safety Catch

The safety catch can only be applied, as a safety measure, when the slide is in the forward position and the hammer is cocked. When moved to the "safe" position, the safety catch locks the slide and interposes a stud in the path of the sear which prevents the sear from rotating sufficiently to disengage the bent of the hammer, should pressure be applied to the trigger. The safety catch is also used to hold the slide in the rear position, when removing the slide locking lever from the body, in order to strip the pistol.



LISTS OF CHANGES

L of C	DATE	DETAIL	REMARKS
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ARMY COUNCIL INSTRUCTIONS

PARA

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EME Regs

No.

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DETAIL

21 ARMY GROUP AND RHINE ARMY TECHNICAL BULLETINS
SA MG and MORTARS

<i>PARA</i>	<i>DETAIL</i>
2.	Repair to the Sear, when partial release of the Sear occurs if the Trigger is pressed with the Safety Catch applied. Defects—Magazines.
81.	Addendum No. 1 to this Bulletin describes briefly the Pistol Browning F.N. 9 mm and includes details of Stripping and Assembling.
83.	Addendum No. 1 to this Bulletin details a list of parts of the Pistol which should be read in conjunction with Figs. 1, 2, 3 and 4 of Sketch SA/6/1.
131.	Care being taken with the selection of Sear and Safety Catches in manufacture. (Reference to Para. 2.) Approval given for the manufacture of Holster Mk. 2. Description of the Holster Mk. 2.

